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FALL RURAL ISSUE

FORMS HANDLING

This secretary demonstrates proper way to grasp stub-tab of snap-out form, gradually fanning it for separation. For other economies possible in handling forms see p. 22.

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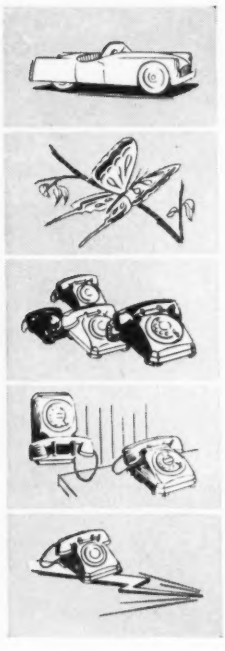

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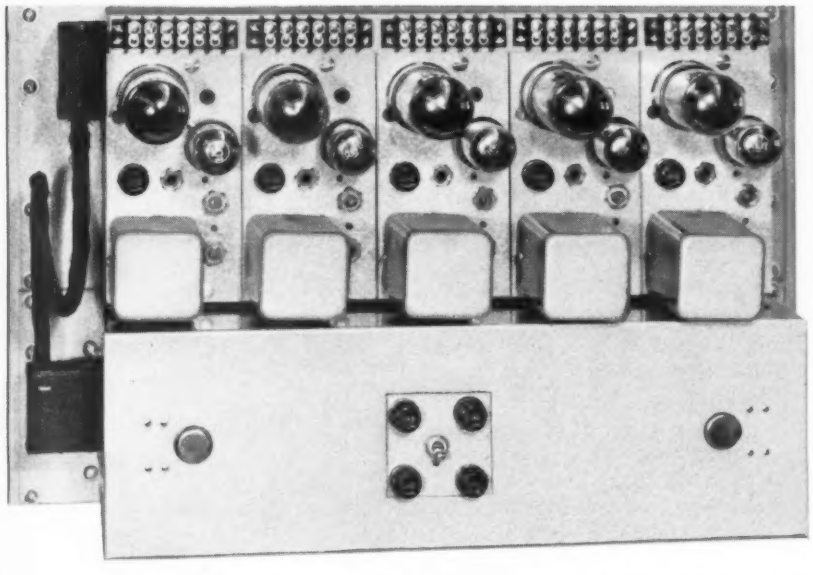

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FLASHES AND PLUGS

HOW TO DRAW THE LINE? From now on, if you don't understand your income tax return form—and who does?—you may call the Internal Revenue Bureau and ask questions. But the bureau no longer will fill out the return for you, a Chicago newspaper has reported.

This was disclosed on Nov. 23 by D. L. Olsen, Chicago regional Internal Revenue commissioner. He said his announcement conforms to a decision in Washington, and that the rule will be effective throughout the United States.

The purpose is to lighten the burden on the Internal Revenue department at income tax time. Heretofore, deputies have been available to assist puzzled citizens in preparing their returns. That service still will be available, Olsen said, but only to persons who are physically or mentally incapable of preparing their returns.

•

PHONEY EXCUSE. A man who claimed he was "looking for a place to make a telephone call" was convicted in Newport, Ky., recently, for breaking into a drugstore. The judge concluded he had gone to too much trouble, and gave him a three-year term.

•

LUXURY'S LAP. A "life extension" office for the executive with heart trouble was recently shown to 4,000 Chicago businessmen.

It was designed by the Executive Furniture Guild of America, a non-profit organization of office designers and dealers, to preserve the energies of the recovered heart patients.

Electronic equipment is featured extensively.

A switch opens the door. Another opens the draperies to reveal an expanse of window.

A button on the control panel permits the executive to talk on the telephone without lifting the handset.

A control panel dims the light for televiewing, selects the station and opens the door, revealing a compact butler unit for sandwiches and drinks.

For the post-lunch nap, a pressure of the forefinger closes the curtains and readjusts the temperature.

The sleeper is awakened by a Beethoven sonata, reproduced by his sound system and started by a previously-set time clock.

How much for this luxury? Upwards of $10,000 an office, says George W. Reinoehl, executive director of the guild.

•

TOO SUCCESSFUL. Telephone officials readily agree that Jean Yothers' daily column in the Orlando, Fla., *Sentinel* has many readers, but they hope she doesn't use a telephone gimmick again to demonstrate this.

She printed an offer of one-month-free passes to the first 25 readers to call a movie theater.

The telephone company reported the exchange serving the theater was so jammed by calls that calls to police, fire, hospital and business numbers couldn't get through.

CIRCULATION

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Since 1901

December 3, 1955

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Telephone WA bash 2-2435

A Critical Decision In Communications Policy

By FRANCIS X. WELCH

TELEPHONY'S Washington Editor

"In the meantime, there arose a new Ruler over Egypt that knew not Joseph." (Exodus 1:8)

THE IMPORTANCE of regulatory background, as well as technical experience, on the part of the members of the Federal Communications Commission is very well demonstrated in a matter now before the commission for decision. Offhand it might not strike the casual observer as very important at all. It might seem quite ordinary and routine, if not rather tediously complicated.

In a word, the commission has been called upon to decide whether a proposed rule should be adopted, which would assign certain frequencies in the 890-940 megacycle band of the radio spectrum to "Industrial, Scientific and Medical Services." The proposed rule would allocate these frequencies which span the very useful 915-megacycle band (including 25 plus and 25 minus) for "primary use" by industries (other than telephone and telegraph companies), scientific, and medical services desiring to employ such multi-channel frequencies for their own special purposes.

The real significance of this technical-sounding proposed rule emerges only when we consider a half-dozen more simply stated facts by way of background:

(1) These frequencies have heretofore been tentatively assigned on a "shared basis" for use by "common carriers" (telephone and telegraph companies) as well as other parties with special purposes.

(2) On the basis of actual utilization, the telephone companies have made such rapidly increasing use of frequencies in this band that they now have an investment and commitment in common carrier fixed services aggregating about 20 million dollars.

(3) The use of these frequencies is particularly important for *Independent telephone companies* rendering public service for the most part to less-popuated areas.

(4) The United States Independent Telephone Association over a period of years has made repeated requests to the FCC for allocation of a suitable band of frequencies below 1,000 megacycles to meet the requirements of Independent telephone companies for multi-channel point-to-point communications. But to date telephone common carriers have not been allocated space on a primary basis in the 900-megacycle region.

(5) If the proposed rule assigning these frequencies, on a primary basis, to industrial, scientific, and medical services (which have heretofore not utilized this band) becomes effective, their usefulness to the telephone company would become seriously impaired or interfered with, if not destroyed.

(6) Most important of all, adoption of the proposed rule would mean a backward step because it would be a departure, in effect, from the traditional common sense over-all policy laid down by the FCC in a number of earlier decisions to the effect that "conservation of the spectrum" requires maximum and economical use of frequencies in the over-all public services, and that community use, where practicable, should be preferred over the use of frequencies for special purposes of special interests.

The United States Independent Telephone Association, in common with the Bell System, has filed dissenting statements with the FCC asking that the proposed rule be abandoned and that the frequencies in question should be assigned on a "primary and exclusive basis" to the telephone common carriers. Looking at the situation from the other side, the main argument why it is proposed—even at this late date—to turn these frequencies over to the other industrial, scientific, and medical services seems to be in order to conform to international radio regulations agreed upon at Atlantic City in 1947.

But as a matter of practical fact, the characteristics of these frequencies and their utilization are such that no real difficulty involving international regulation could conceivably arise. Radio frequencies in this limited range, used in a normal manner, could never become an international problem. So that, as far as even our good neighbors in Mexico and other Latin American countries, as well as the Dominion of Canada, are concerned, it would make little difference whether the frequencies were used to supplement telephone service facilities or for the special purposes classified under Industrial, Scientific, and Medical Services.

The Regulatory Background

The over-all guiding principles tied up in this seemingly technical and complicated situation are really quite simple and quite well established. The utilization of radio frequencies is a comparatively new phenomenon, having developed almost entirely within our own generation. But the principle of the "greatest good for the greatest number" is very old indeed.

The need for the licensing and regulation of common carrier service can be traced clearly back to ancient times. When Caesar's legions roamed through Gaul and the chariots of military and civilian communications rattled up and down the Appian Way to the capital city of Rome, there were common carriers. And we can read in Tacitus and other writers of antiquity how the obligation of these common carriers to serve the over-all public interest was rigidly enforced.

In our own relatively short history as an independent nation, we have

learned by experience the importance of providing for a regulated public service as distinguished from disorder of unregulated competitive private service. Our great system of transportation—starting out with the colonial era turnpikes, the building of the transcontinental railroads, the barge and canal lines, and other operations which now fall into the public utility category—was developed under a form of regulated monopoly. But this system of regulated common carriage was developed only as a result of trial and error and from bitter experience. In some cases it was costly and disastrous experience.

In the early years of the Republic, we tried the use of competition, along the same lines as had succeeded so well in the field of non-utility enterprise. But this was soon found to involve wasteful duplication of facilities, resulting in poor service and high rates to the public. Then there emerged the system of regulation which we know today. The commissions allocated operating rights on an exclusively territorial basis in return for a very important concession — the obligation of public service.

When the telegraph and the telephone were invented, the art of transportation—previously confined to the carriage of goods and passengers—was extended to the realm of intelligence; and the telephone companies became carriers of communications. Commission regulation was likewise extended to the control of a new form of public service at reasonable rates in return for protected operating rights.

The emergence of radio and television have simply placed fresh emphasis on the basic general principle of seeking the over-all good for the greatest number. In the early years of its establishment, the Federal Communications Commission rightly placed stress on technical knowledge. The evolution of technical controls to bring out of the chaos of a limited spectrum beseiged by a multitude of would-be users was a job for engineers, not political economists. In the process, there apparently has grown up a generation of technicians who have not always shown a sensitiveness to the importance of the basic principle of common carrier regulation. And as the Bible says, "there arose a new ruler over Egypt that knew not Joseph." The present situation would seem to demand clear recognition of, if not a return to, first principles.

It would be a tragic mistake if this basic truth were so lost sight of as to permit the actual elimination of a sound *public service use* of these frequencies in favor of utilization by special interests for special purposes. Remember, these are purposes which could just as well be accommodated through the use of public service facilities!

It is obvious that a radio frequency used by a telephone company is being put to the most complete and economical use. That is the very nature of telephone service operations. There is a diversification of traffic all around the clock, day in and day out, without variation of season. More than that, such services are constantly under the control of the commission by very reason of the status of the telephone company as a regulated public service.

Many of these special interest services could just as well be accommodated through the utilization of telephone service. If there is a question of rates, there is a regulatory commission to investigate and establish a fair rate. If there is a question of service standards, there is a regulatory commission to investigate and establish proper compliance with adequate service standards. Certainly this much cannot be said in the case of operations by private interests, answerable to nobody but themselves, except in cases of outright interference with other users of radio frequencies.

Obviously there is need for certain special uses, on an exclusive basis, of radio frequencies. The government needs them; the police, health, and safety agencies need them; and aviation, marine, railroad, and other public utilities need them. There is no suggestion here that there can be any cessation or even much diminution of these well-established special services for manifest reasons which need not even be recounted. On the contrary, there will probably be even more pressure put on the FCC to make available more frequencies for an ever-increasing variety of public services.

But what makes this "proposed rule" a critical communication decision, however, is that it gives the FCC an opportunity for a firm and positive restatement of basic policy. The policy should be the same as the conservation of any other great natural resource. And the conservation of natural resources has always been exercised for "the greatest good for the greatest number." It is as fundamental as that.

If the FCC departs, in this case, from its sound basic principle of conservation of the spectrum, it is setting up a terrible problem, bound to give rise to trouble and grief in the future. It is a problem which, if solved the wrong way, will inevitably have to be done over again, reshuffled, and eventually solved the only right way. But by that time, years hence, the solution will be vastly more expensive, time-consuming, and vexatious than if it were solved *right*, in this year of our Lord, 1955!

The reason why the "common carrier" solution is inevitable (regardless of what the present FCC may see fit to do in this particular incident) is that the commission is dealing with a limited natural resource. Technical science has succeeded in opening up a myriad of uses for higher and higher frequencies, in multiple ways previously undreamed about. But for every form of utilization discovered, a multitude of new demands are born. That is because we live in a dynamic civilization, with growing population, and a sky-rocketing increase in demand for every form of electronic communication which the mind of man can devise.

Since, therefore, the radio spectrum is not an unlimited heritage, but rather one which, as in the case of a national park or a highway or any other natural resource, must be distributed for the benefit of all—not just a few—the FCC must set its sights above the bickering demands of special interests.

Fortunately there is reason to believe that the FCC membership has been getting more recent infusions of classical regulatory background. The Eisenhower appointments, in particular, have been taken from the grass roots of state regulatory commissions.

It would seem to this observer, then, that the FCC is at the cross-roads. It can yield to temporary pressures by parcelling out frequencies to special interests; yet, these same frequencies will one day have to be claimed for the general public interest. Or the FCC can save itself many future headaches by a restatement of first principles.

The telephone companies have made their stake in the 915-megacycle band. They have built up a business and a service needed by the public. They have committed millions of dollars to that service. To banish them now would not permanently solve the problem, even if it did relieve some existing special pressures. The only way this problem can permanently be solved is the *right* way —*by giving a preference for the use of any radio frequency to an established public service already subject to full-scale regulation!*

If the FCC membership makes the wrong decision now, in this case, some of them may well live to rue the day such a thing was decided. If the FCC membership makes the correct (and eventually inevitable) decision, generations as yet unborn will rise up and call them blessed.

The Snipers are Busy Again

By HAROLD B. McKAY

"For Brutus is an honorable man."
—Shakespeare

MARC ANTONY gave Brutus these few words of praise and then proceeded with a long speech to prove the exact opposite. Joe Beirne, president of the Communications Workers of America (CWA), used somewhat the same kind of double-talk in the October issue of the *CWA News*. In explaining that his union is to have a committee to investigate government ownership of the telephone business in those foreign countries where that system is used, Mr. Beirne asserts that he and his organization favor private operation. He then continues to enumerate reasons why the government should take over.

While Mr. Beirne's statements might be regarded as sabre-rattling designed in some vague way to give CWA bargaining advantages in future negotiations with telephone companies, he plays a dangerous game.

The snipers at private enterprise have lain relatively dormant for the past three years because of a political climate in Washington unfavorable to their expansion. But they are now going on the offensive. Every once in a while a rumble is heard which should be regarded as a warning by the industry of things to come in the months ahead when the political attacks on business really get hot.

FCC Investigation

Ever since the days of the more or less one-sided FCC investigation of the telephone business in 1935-1937, there has been a faction in existence which aims for government control of the telephone industry. These people will use every possible means to further their aims. Inferior service, obsolete equipment, labor troubles, and arguments such as those contained in Mr. Beirne's column, can be used to advance the cause of government ownership.

The socialists who like a planned economy (and whose plans never seem to include economy) believe that all necessities of life should be government owned. These "necessities" automatically include everything that they want to get their paws on. This argument has not changed any since the days of the IWW.

CWA News, while claiming to have an over-all preference for private enterprise, repeats this argument, along with others in a rather oblique fashion. Among these is the old rabble-rousing charge that corporations today are only interested in maximum profits and not in human welfare, and that public ownership would bring about responsible ownership dedicated to the public service and the public need.

Silly as this may sound to those who know better, it can be a dangerous argument because a reader does not always bother to check facts. Actually, the above argument is completely misleading and untrue in all of its premises. In the entire history of mankind, people never enjoyed a better life than do the American working people of today. The wealth of the nation is now in the hands of the working people—it is no longer controlled by a few.

Today the biggest slices of the income of all big corporations are paid out to the workers and the government —not to the owners. The annual report of any big telephone company will show that the government now is equivalent to the largest stockholder, if the size of the take is an index.

Unions—First Casualties

Union leaders would do well to remember that they could easily be the first casualties under government ownership. They might remember the Fabian Socialists of England who literally took over the Labor Party as a step towards nationalization of industry. To this day the Socialists still call themselves the Labor Party. Labor control of the party has long since ceased.

They might also think of the position of "labor" under the control of the recent dictator Peron.

They might even recall the government control of the telephone business in the United States during World War I which resulted in (1) increased telephone rates for everybody, (2) low wages for telephone people, (3) a series of disastrous strikes, (4) the busting of the labor unions out of the telephone field, and (5) deterioration of the plant.

The snipers at private enterprise are busy. They would be happy to include the U.S. telephone system in their socialistic ruin. The telephone service would then be like the postal service or the various municipal transit outfits in the country which have a continuing history of declining service and high rates. Are our postal workers so highly paid as to incite envy? Do they have any union which is in a position to offer anything more than respectful advice to their employer (the post office)? These and many other comparisons with poorly paid workers, poor service, and poorly patronized government telephone services abroad, are things which the CWA leaders should really consider if they want to make an honestly constructive contribution to this important subject.

"If, in one way or another, stock ownership can be endowed with a better sense of proprietorship, it would be helpful to the survival of our free-choice economic society. More should be made of the cooperative nature of the modern corporation, which pools the savings of many thrifty persons in order to buy better labor-aiding tools to help employes produce more and hence earn more, while providing customers with more and better goods at less cost."—M. S. RUKEYSER, *columnist, New York Journal-American*.

Shall We Ground or Insulate?

THERE was a time, in the not too distant past, when all guys in outside plants were equipped with strain insulators. This practice was more or less automatic and these insulators were usually provided without any consideration as to whether or not they were necessary. It is believed that this practice is being continued today in some areas, and strain insulators are being installed at considerable expense, in at least certain cases wherein they are not required and serve no useful purpose. In this article we will attempt to give you the "pros" and "cons" of the question and then let you decide which practice you will follow in the future.

When guys are classified as exposed, they are considered an electrical hazard to workmen and the public and must be electrically protected. According to REA specifications, a guy is considered exposed where:

(1) It passes over, under, or between supply conductors of a potential exceeding 300 volts to ground, or where it is attached to a pole carrying such conductors, or

(2) It is so located that the minimum horizontal distance between it and the nearest supply conductor, with a potential exceeding 300 volts, is less than 10 feet, or

(3) It is connected to a cable supporting messenger strand that is not systematically and effectively grounded.

Effectively grounded as used in this case means permanently connected to earth through a ground connection of low enough impedance and with sufficient current carrying capacity to prevent a build-up of voltage which could result in a serious hazard to connected equipment or people.

The National Electrical Safety Code makes the following statement with reference to the use of guy insulators:

(1) *One insulator.* An insulator shall be located in each guy which is attached to a pole or structure carrying any supply conductors of more than 300 volts to ground and not more than 15,000 volts between conductors, or in any guy which is exposed to such voltages. This guy insulator shall be located at least 8 feet above the ground.

EXCEPTION 1: A guy insulator is not required under the following conditions:

(a) Where the guy is electrically connected to grounded steel structures or to a ground connection on wood poles.

(b) Where the guys are uniformly effectively grounded throughout any system of overhead lines.

(c) Where the guys are connected to a line conductor which has at least four ground connections in each mile of line in addition to the ground connections at individual services.

EXCEPTION 2: A guy insulator is not required if the guy is attached to a pole on private right-of-way carrying no supply circuits whose voltage exceeds 550 volts or whose transmitted power exceeds 3,200 watts.

Grounded guys on both telephone and power lines.

This view shows messenger strand used to ground guys.

All guys used to be equipped with strain insulators.

xposed Guys?

By RAY BLAIN

EXCEPTION 3: A guy insulator is not required if all supply conductors are in a cable having a grounded metal sheath or supported by a grounded messenger.

(2) *Two Insulators.* Where a guy attached to any pole carrying communication or supply conductors, or both, is carried over or under any overhead supply conductor of more than 300 volts to ground and where hazard would otherwise exist, two or more guy insulators shall be placed so as to include the exposed section of the guy between them as far as possible. Neither insulator shall be within 8 feet of the ground.

The principal reasons for the use of strain insulators in guys or grounding may be explained briefly as follows:

(1) To protect pedestrians from guys which may be in accidental contact with power carrying wires.

(2) To protect linemen working on poles from guys that may be in contact with power carrying wires.

(3) To reduce to a minimum the possibility of plant damage which might result from an unsafe condition.

Strain insulators are also sometimes used to insulate grounded guys from power line working space when this condition would prove an additional hazard to linemen working on jointly used poles.

When installing guys, every precaution should be observed to avoid unnecessary crossings or power circuits or other conditions that would place them near power carrying wires. When it proves impossible to avoid guy exposures, proper clearance should be maintained at all times between the guys and power circuits. Adequate clear working and climbing space for linemen should also be provided in every case. These conditions are fundamental and neither strain insulators nor the grounding of guys should ever be considered as an acceptable substitute.

As a rule, people seldom come in contact with guys, and contact between guys and power wires are infrequent when ample clearance is provided and the plant is properly maintained. Therefore, the chance of injury to people from exposed guys, even though they may not be equipped with strain insulators or special grounding, is relatively small in most instances.

When it is also probable that the power circuits involved will be quickly de-energized if an accidental contact occurs with a guy, the use of strain insulators or special grounding is usually considered unnecessary. The hazard involved has about the same probability as that of a live wire falling on a pedestrian and it is, of course, impracticable to provide full protection against accidents of this nature.

It must be understood, however, that the use of strain insulators or the grounding of guys is necessary in locations where a part of a guy may accidentally contact a power wire and re-

(Please turn to page 65)

Grounded guys on a telephone line.

Power guy is insulated and telephone guy is grounded.

Are You

Wasting Money

On Your Office Forms?

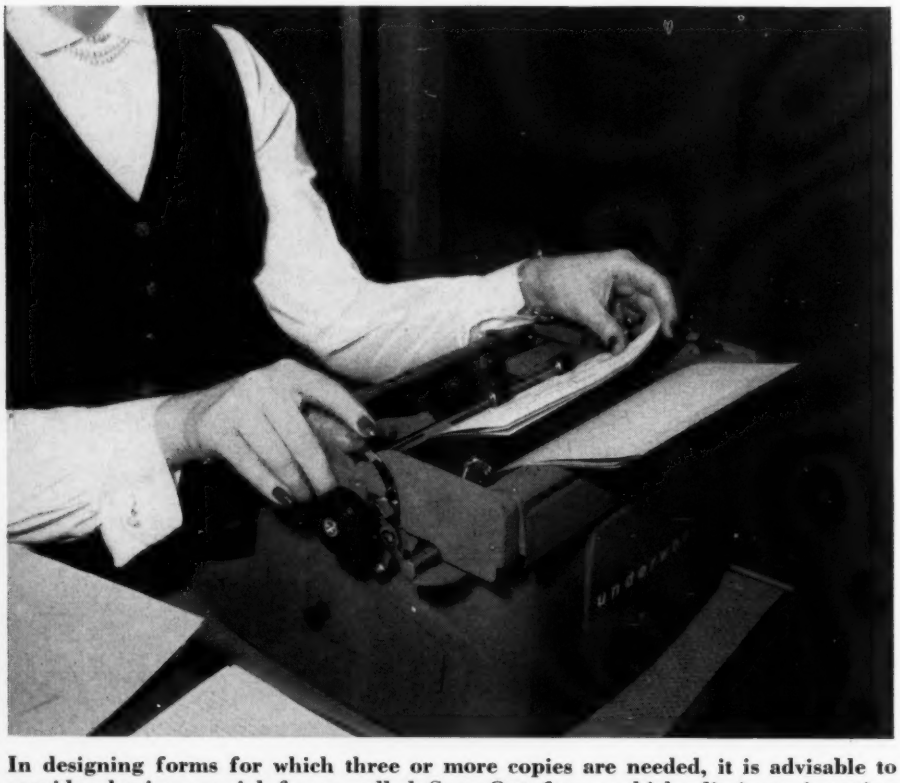
By Alven S. Ghertner*

THE KEY COST of office forms is not the cost of printing. True, it looks that way on a budget and many office managers beguile themselves into thinking it is so.

The significant fact, however, is that expensive clerical labor is applied to the form. For many companies—particularly in the telephone industry where a large percentage of "production" is clerical—the time and work spent on forms become an important cost factor.

When an office manager relates these clerical labor costs to forms reproduction cost, a striking picture begins to emerge. He usually finds that he is spending from $5.00 to $10 in clerical expense for every dollar he spends directly on forms. Moreover, if he adds his general overhead and a part of executive salaries to the basic clerical cost, the gap grows even wider.

*Mr. Ghertner is president of Cullom & Ghertner Co., Nashville, Tenn., printers and lithographers of business forms.



In designing forms for which three or more copies are needed, it is advisable to consider having special forms called Snap-Out forms which eliminate inserting and extracting carbons one at a time. Here the secretary has merely reached for the form and in one motion is ready to begin typing.

In other words, the major expense of a form is the clerical labor cost of processing it. Obviously, forms design should have as its basic objective lower clerical costs. Expert form design and form handling is an important key to any lowering of clerical costs.

For instance, telephone equipment is not only expertly designed, it is scientifically ordered and inventoried in line with estimated use and life cycle. On the other hand, office forms too often are ordered and inventoried on a "feast or famine" basis.

Again, in communications companies each piece of equipment has a definite function. There is little—if any—overlapping. But, in the typical office, many forms are designed by different departments, are filled in by different workers, and contain identical information.

Before showing how to attack unnecessary paperwork expense, it might be interesting to show its national dimensions. The pattern is roughly this: The clerical population is growing about five times faster than the total population. It has been estimated that man-hours spent on paperwork, including the time spent by production, engineering and staff management, is probably higher than 25 per cent of total national man-hours. In other words, in 1954 more than 70 billion dollars was spent for paperwork alone!

If it is true, as most office methods specialists agree, that about 30 per cent of paperwork is pure waste, then offices, including the telephone industry, gave away about 20 billion dollars last year.

There is no easy, wand-waving technique for controlling forms and paperwork costs. If there were, that 20 billion dollars would not have been wasted. However, many companies *have* controlled their forms costs (much of which represents clerical costs) by setting up a definite program with well-defined procedures. The precise features of each program vary from company to company, but the underlying principles are these:

First, collect a sample of every form used in the company. Note its source on each form. Collect so-called "temporary" as well as all permanent forms. Make certain you have harvested every form used. Check especially carefully forms used in division, district and local offices. It is amazing how forms used in only one office multiply unknown to anyone in the headquarters office. Include also forms reproduced in the office along with forms printed commercially. No matter in what quantity produced or used, if the paper has printed information on it and if it is designed to elicit further information

on blank spaces, it is a form and should be included.

Second, classify the forms. The purpose of classification is to enable the forms analyst to compare quickly and to answer the cost-cutting questions he is readying. There are many different types of classification systems, but two are of key importance.

The first is termed a location or numerical file. Each form goes into a separate, numbered manila folder. Other than the form itself, the folder holds two prime bits of information: the department or departments using the form and the number of forms used in one year.

The second file is a functional one that answers all the questions. One of the country's leading forms specialists calls this file a functional index. It tells three things about each form: what its subject is; the type of operation in which the form is used, and the function the form does in that operation. When coordinated with the numerical file, it gives complete information.

The key to a successful functional file is absolute precision of terms. Each of the three descriptions must accurately reflect the function of the form. Take a service order for example. The basic size is perhaps 5 inches x 8 inches and in quadruplicate. A card in the functional file might read:

Subject — What customer wants installed or what customer wants disconnected.

Operation — Quadruplicate. First copy for originating office as a record. Second copy to plant department for filling order. Third copy to directory department for listing. Fourth copy to accounting department for billing.

Function—To promptly notify each department which would be involved in the service order and have duplicate copies of the function they are to perform in the matter.

Other typical form functions are scheduling, reporting, authorizations, identifying and the like.

With these two files the company is ready to analyze its forms. For each form it knows:

Who originated the form.

How many are used each year.

What the form's subject is and the type of operation for which it is needed.

The form's specific function in that operation.

The form's contents.

Because many forms have more than one function, these also are usually listed under the form's major function.

This type of classification system makes possible a fast, scientific method

Proper forms use also means handling carbons in such a way that the hands can be free from smudges. To make erasures effectively, roll the paper under, as shown, so that the fingers do not touch the carbons.

for weeding out inefficient or obsolete forms and for eliminating or combining forms that overlap. Any office manager can locate quickly all forms used in a particular procedure, regardless of the department of actual use, because the key elements (subject, operation and function) are identical. He often finds that the forms are designed differently and ordered by various departments separately, however, and an opportunity for standardization is opened up. But the major saving comes from the fact that one clerk will probably be able to do the job that two did before.

A weird assortment of forms serving the same basic function is a major contributor to many companies' high paperwork costs. Here is a not-uncommon example given by a well-known methods expert:

"In one electronic equipment company, I found that the payroll, cost, production control and materials control departments had each set up its clerical organization throughout the company. The only significant difference was that the payroll clerk related the production to the clock number for piece-work pay purposes.

"The obvious answer was to place the responsibility with production for what happened. With one set of clerks reporting the information to the front office, they then were able to process the facts for payroll, cost, production and material control, keep the figures in balance and produce more accurate records. Costs were cut 40 per cent."

In other cases, analyses of the classification file will show that two or more forms have the same major function, with differences only in one or more minor functions. The addition of these items makes possible a combination of all these forms into one at a considerable saving.

Still another function of the file is in purchasing. Creation of new forms is becoming a major company pastime. Every employe has a brilliant idea for a new form. A central functional file makes it possible to check requests for new forms against every existing form serving a related function in the company. Result: tighter control.

Put in a nutshell, classifying all of your forms makes it easy to put into effect the three cardinal principles of forms control:

(1) Simplification.
(2) Elimination.
(3) Combining.

There is nothing mystical about the application of forms control. The key is in a few simple questions asked about each form: what is its function; why is it necessary; when is work done on the form; how is work done on the form; who does the work; where is it done; and how often is it done.

Getting hardheaded, logical answers to these questions is 75 per cent of a forms control program, because you then have the basic facts of office life behind each form. You can trace the flow of the form in the office and, if necessary, you can justify its existence.

But what about the form itself? It is at this stage of the game that many forms control programs show signs of fatigue. Office management knows a form is necessary and it knows what must be on the form. Having gone through numerous conferences with several department heads; having spent a great deal of time working out the precise nature of material to appear on the form, they then hurriedly draw up a rough sketch that closely resembles an Arabian anacrostic and send it off with the printer's salesman to be run off in lots of thousands.

The good printing company will ask for more precise information—and an experienced printer usually can salvage a hopelessly jumbled form for his customer—but because some printers may often not ask questions and are not intimate with the form's expected use —whether, for instance, it will be filled in by pencil or by typewriter—the finished form may invite errors in posting and countless hours in clerical time over a year's period.

What should you do and know about the form before you send it to the printer? Before looking at your rough draft form and perhaps ripping it apart, there are five basic principles to remember.

(Please turn to page 69)

The Open House

*By PAUL H. KAUFMAN**

ONE OF OUR most important means of improving public relations and telling the Independent telephone story is the *Open House* program. During the past year I accepted an invitation to address the Kiwanis Club in one of the towns where we operate an unattended automatic exchange. I was honored by being introduced by the mayor of the village.

His introduction went something like this—and may I say parenthetically, in a sincere and courteous manner—"We are appreciative of the fact that our telephone company has sent us a speaker this evening. You know since we have had dial telephone service, we do at times see a telephone truck in town, we notice advertisements in our local paper, and we do get a statement regularly each month, but otherwise it is very seldom we see a representative of the telephone company."

He then made the customary remarks that are used in presenting a speaker. His analysis certainly did give me some food for thought, and I propose to use it as the basis of my remarks today.

Let us first of all recognize certain basic facts. *Mechanization of telephone service reduces our opportunities for personal contacts with our subscribers.* I would like to repeat that statement, for it represents a condition which exists today, and one which should not be ignored. Mechanization of telephone service reduces our opportunities for personal contacts with our subscribers.

*Mr. Kaufman is director of information of the Northern Ohio Telephone Co., Bellevue, O., and he presented this address at district meetings of the Ohio Independent Telephone Association.

Three of the above photographs showing groups of school children at "open houses." It is suggested that these groups be invited to attend during the morning. The author suggests that refreshments be served at "open houses" at appropriately arranged tables as shown in the lower left photograph.

With dial service our customers hear an operator's voice only when they place a long distance call—and to some subscribers this means never. Also, our experience is that now more than 70 per cent of our customers mail their payments. The only contact with personnel of the telephone company by many of our customers is through the repairman or installer.

While it is not included in my subject, I cannot resist saying something about these employes. To the subscribers *they are the telephone company.* They can create a favorable opinion of your telephone company, or they may do just the opposite. I would like to suggest that you utilize to the fullest extent these employes to create a favorable opinion of the telephone company. It can be done if they are trained to do a proper job in public relations.

To offset the removal of personal contacts we must do certain things—*we must take the telephone company to the public, and bring to the telephone company the public.* There are many ways to take the company to the public—by advertising, news releases, furnishing speakers for various civic and service organizations, and through our educational programs in the public schools. I affirm that none of these media are beyond the reach of any company. It may be that you are not in a position to prepare reports, with pictures, and to do some of the things larger companies are doing, but you can report to your subscribers by mimeographed letter, keeping them fully informed. If your company is too small to maintain a publicity or advertising department, I would recommend the services offered by Telephone Advertising Institute. This organization, which consults with the Advertising Committee of the United States Independent Telephone Association, furnishes to telephone companies an advertising program that is adequate, and at a cost within the reach of all.

As to news releases, it has been my experience that most editors are glad to print news concerning the telephone company—if you will but furnish them with the facts.

Now about this bringing the public to the telephone company, how do we accomplish this? The answer should be obvious—through the open house. We in the telephone business have a great deal to tell the public—we have a real story to tell, and one of which we have every right to be most proud. What other business or industry can boast of a better record of progress? And where better can that story be told than in our own exchange buildings, with a background of telephone equipment. Here people can see for themselves concrete evidence of progress and expansion.

Group being shown through the toll operating room during a recent "open house" at the Norwalk exchange of the Northern Ohio Telephone Co.

If we will be honest with ourselves, we will be forced to admit that in spite of our efforts to publicize the industry, a great deal of what has been done to provide more and better telephone service is not generally known and recognized. I am convinced that the open house is one of the most important means of telling our story, and improving our public relations.

I have now reached the point in this discussion when I am really going to talk "shop," to give you what information my company has learned through experience.

There are several types of open house, and it might be well to mention and describe them first of all.

The selected group open house is one in which we invite a small group to visit our exchange. The invitation may be for a dinner, a lunch after the tour or strictly a visit to the exchange. The group invited may be the village or city council, chamber of commerce, or some similar organization. It might be a ministerial group, or ladies club. It is a group of leaders in your community to whom you want to tell a story pertaining to your business. Such groups are largely entertained by the manager, and do not require a great deal of preparation as far as the "tour" is concerned.

The term, "open house," might well be given to the entertaining of groups from the schools. We are particularly interested in such groups, and during the year are hosts to many students. These young folks help to carry the story to their parents, and we should never lose sight of the fact that they will be our subscribers in a few years. Ordinarily, this type of open house does not require much preparation and is conducted informally.

BIE (Business-Industry-Education) Days have been held in many of the communities in which we operate. To those of you who may not be familiar with such programs we say that such occasions are a day set aside for the teachers to visit the various industries and businesses in that particular town or city. They afford an excellent opportunity to acquaint the teachers with the various phases of our business. It goes without saying that a favorable opinion of the telephone company by our teachers is most important and valuable. It has been our experience that this program is also most helpful in securing employes from the graduating classes in our high schools.

We like to think of the "Family Night" as a preview to the public open house. It also serves as a dress rehearsal, as we observe Family Night prior to the public open house. It is on this night that we entertain the employes and their families. In our opinion, it is one of the best possible means of instilling pride in our employes—it is the night that the employe has the opportunity to show his family what he does, the important part he has in the furnishing of telephone service to his community.

When referring to open house most folks think of the public open house, and it is to this activity that I wish to devote most of my time today. It is the program for which the public is invited to visit the telephone exchange. No doubt, there are many questions in your mind concerning such an activity, and I will endeavor to answer them

in as nearly a logical manner as possible. Perhaps the first of these questions might well be, "When do we have an open house?"

It certainly is not necessary to have a new building or a new exchange before you hold an open house—although such conditions are ideal for the program. May I also add at this point—do not have an open house simply to be doing something.

Open houses should be planned with a definite purpose in mind. It may be that you want to show the public and your subscribers what has been done in the way of progress; it is possible that you may want to explain some service difficulty to them, or it may be that you are contemplating a rate adjustment, and in this case you are able to show the expensive equipment required to furnish telephone service. Last, but by no means least, as previously mentioned, a new exchange building or new central office equipment is a "natural" for the open house. The first step is to decide upon a theme for your open house, and center your entire program around it.

Next, decide when you are going to conduct the open house. If you are going to put on the program, you want to do everything possible to have a large attendance.

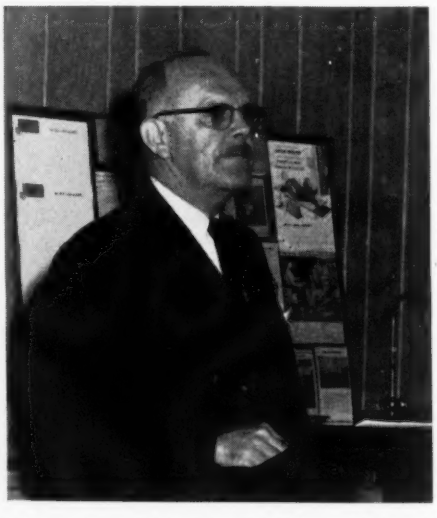
It has been our experience that either Spring or Fall is the best time for an open house. We think it is important to have it when school is in session. During the summer months many are on vacation, and, too, the extremely hot weather does cut your attendance. We mentioned that we preferred to have open house when school is in session, and the reason is this—we arrange with the school officials to have the students visit our exchange during the mornings or early afternoons. You will find that many will return in the evening, bringing their parents with them.

We also set our open house programs during the time of the month when collections are heaviest—for many people come to the office during this period and many will take the "tour" who might not otherwise do so. Of course, conditions vary in different communities, so it is difficult to advise you as to the length of the open house. Our experience has been to have the program two afternoons and evenings. We do arrange for visits in the mornings by the students, and on certain occasions we have had to entertain some of them during regular hours of the open house. The time we have generally used is from 1 p.m. to 9 p.m.

Publicity and Invitations

It has been our policy to send invitations to all subscribers. We run ads in the local newspaper announcing the affair and inviting the public to visit the telephone exchange. With the advertising we also prepare news releases for the paper. In our exchanges where radio stations operate we prepare "spot announcements" to be used both before, and during open house. We also urge all employes to invite their friends to come to open house.

In brief, use every available media to bring as many people as possible to the telephone building, remembering that you are doing this with a definite purpose in mind, and the larger your attendance, the more successful and effective will be your open house.



The author delivering his "open house" address at a district meeting of the Ohio Independent Telephone Association.

Preparation for Open House

Preparation for an open house should be started well in advance of the actual time for it, for there are many details which must be planned if you are to have a smooth program.

I think one of the first and most important steps is to fully acquaint your employes with all plans, and to select those who are to participate in the program. Endeavor to instill in them enthusiasm for the activity, get them to want to help, and to tell their friends and neighbors about the open house.

It goes without saying that you will want the building and equipment to be "spic and span." You will want to show the guests that the telephone company is a good housekeeper. Any hazard which might exist in the building certainly should be removed. For that matter such conditions should never exist at any time. It has been our practice to provide flowers for the commercial office, the operator's lounge and at the refreshment table.

Your "tour" or route should be carefully planned and each station or stop along the route should be marked with placards. By having such a plan you are sure that your guests will see the things you want them to see, and there will be no confusion or lost time. Some companies have used a rather unique method of designating the route by using white footsteps.

There are two methods used in conducting "tours." Some follow the practice of having guides who can explain the equipment and are in full charge of the group during the entire "tour." Other companies have employes stationed at the several points, and they do the explaining and at the conclusion of this person's talk the guide conducts the guests to the next stop. The decision as to which plan is best adapted to your case must rest with the company conducting the open house. It might be of interest if I were to outline a typical "tour."

We like to start with the cable vault, showing the UG cables coming into the exchange building. Folks are always amazed when you tell them how many wires are contained in these cables.

Our next stop may be the mainframe. Here, we tell the people, are all the lines connected to the exchange, often locating the line of one of the guests. We show them the equipment, the batteries, the power equipment, the test desks and the operating room and toll board, if the exchange has one.

Again, we point out that the route varies according to local conditions, and it is not possible to have a standard "tour." We have in some cases used a demonstrator set which is in reality a miniature telephone exchange. Such sets are secured through the manufacturers. Some use various other types of displays. Actually some are inclined to think that too many displays detract if you are showing a new exchange building or new central office equipment. In such cases, you are displaying the new exchange, and that in itself should be the main attraction.

Certainly under the heading of preparations we should mention souvenirs as such. We do hand our guests either a pamphlet which describes their visit to the telephone building, or a special issue of our magazine, *Northern Lines*, which features the open house.

It is important to avoid any lavish display which might lead our guests to think we are making foolish expenditures of money. We do think it is

(Please turn to page 70)

lephone that has modernized hundreds of magneto exchanges . . .

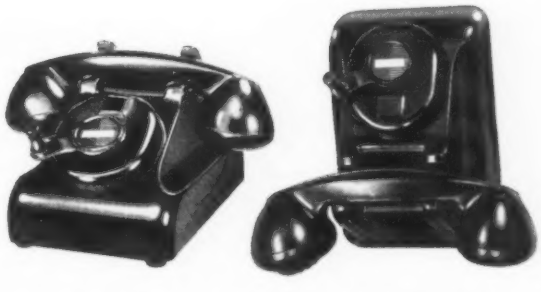
Over 180,000 Leich 900 magneto telephones are now in service. Telephone folks all over the country agree that this compact, modern telephone is the answer to their instrument problems.

With the Leich magneto telephone you can give more dependable service than ever before. Transmission and reception are the crispest, clearest you've ever offered your subscribers. The Alnico generator is powerful enough for your most heavily loaded rural lines. Your customers will find the handy generator crank easier to operate.

The unique design of this LEICH telephone enables you to offer your subscribers their choice of either wall or desk installation.

Another reason why the Leich 900 magneto telephone is such a sound investment is because it is so easy to convert to common battery or dial service. All it takes is 5 minutes and a few changes.

Here then, is the magneto telephone that offers a new high in magneto service . . . a telephone that was engineered with the problems of a magneto exchange in mind. Try one in your exchange and see for yourself.



use it for wall or desk installation!

No need to order a special model. The Leich 900 is both a wall and a desk telephone. For desk use just set it down. For wall use you simply turn it around and mount it on the wall. No changes are required. Just think . . . you need to stock but one type telephone for every requirement.

so easy to convert!

If your exchange uses Leich 900 magneto telephones and you convert to common battery or dial service, this telephone is still good. It takes just five minutes to remove the generator and change a few wires which changes the circuit to common battery. If you convert directly to dial, all you do is add the dial.

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GENERAL SYSTEM INDEPENDENTLY

A B C of the Telephone

by Frank E. Lee

BY EVERY MEASURE of the word, the telephone business is a changing business. Each day brings new ideas and new ways of doing things, both from a technical standpoint and from a customer demand viewpoint. Yesterday's dreams and ideas in the laboratories are being put into actual use today, and today the folks in the laboratories are working on the things that will be new tomorrow.

The exciting truth of this statement is driven home conclusively when a person stops for a moment to reflect on a few of the things that are making these great changes in the industry. For instance:

(1) Nationwide direct distance dialing is being expanded in every part of the country. This means broader horizons have been placed at the customer's fingertips.

(2) Carrier systems make it possible to add to the number of available circuits without making major changes in the physical plant. This magic multiplier of telephone lines was first used on long toll circuits. Now carrier can be used economically on subscriber lines and short-haul toll circuits as well.

(3) Automatic switching systems are serving over 75 per cent of the nation's telephones. Without the speedy accuracy of the familiar dial telephone, the size of the industry would not be what it is today. But some day, it is safe to expect, changes will come in this part of the service also. Consideration is being given to the idea of using push buttons with tone impulses to operate electronic switching equipment. The advantages? The usual telephone kind—faster service, improved circuits to extend the length of subscriber lines, and the ability to serve more people—better.

(4) There are a host of other "this is a new idea" things in common use today. The list includes new drop wire, new ways to provide adequate telephone protection, automatic answering sets, loud speaker telephones, new devices to simplify outside plant construction, and many more similar practical ideas.

PART 74. The challenge of a Changing Market. The preceding article in this series appeared in the August 6 issue, page 16.

From the customer viewpoint, too, telephone service is taking on a different meaning. People, today, are using a greater variety of telephone services than was ever dreamed of a few years ago. In the past 10 years the number of telephones in service in the country has almost doubled. Based on the amount of total service provided, the figure is more than doubled.

The use of special services such as Teletypewriter lines, tie lines, radio dispatch terminals and the like, is growing by leaps and bounds. Make no mistake about it, providing these special services is a big business operation. Over 20 per cent of the total revenue in a large midwestern metropolitan area is derived today from selling special services. That is a sizable percentage in any language, and it only makes a person speculate about the amount of total service the telephone industry will be providing in only a few years time.

The pattern of telephone growth is changing, also. America is flexing its muscles and expanding in every way. Super highways, faster train service, and the speedy wings of air travel make it possible for industries to grow in areas away from crowded cities. This means growth in many of the areas served by small Independent companies.

Some folks call this change in our way of living an about-face in the American way of life. Others say it is a modern day version of the American heritage of seeking and finding new frontiers and new places in which to grow and live. Whatever the explanation of this change, it still represents a challenge to the small telephone company.

The startling thing is—these changes no longer are a question for the future. They are taking place today and company after company must face the problem of providing more service for more customers.

If plant additions or extensions are necessary, they must be made now because the new customers want service in the new locations at once. They are entitled to expect that kind of service, too.

On occasion an operating company may appear to be dragging its feet a little bit before going to work on the job of providing service in new areas. This impression could be caused by one of two reasons: (1) The customers are not aware of the activity that may be under way, or (2) the company really is dragging its feet.

What can be done about situation number one?

It's always a good idea to keep the public informed about new plant additions or about the new lines being built. The customer who is waiting for service is assured that he will have service in the shortest possible time. There is a good reaction among old customers, too. They know the telephone company is keeping pace with changes in the community.

As for situation number two—the company that is not doing all it can to keep abreast with the rest of the community would do well to be reminded that the public will not tolerate the situation for too long a time. If necessary they can and will call the situation to the attention of the proper state authorities.

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This dry cell is the original telephone cell greatly improved and is built especially for telephone use. It delivers long service life with uniformity and dependability in the highest degree.
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Aggressive small Independent companies are accepting the challenge of providing more service for the new customers moving into the community. They are taking stock of the situation and adding new plant, converting to automatic, and giving better service to both old and new customers. If the situation warrants, their actions will add support to their request for increased rates. They are going to stay in business, and they will make a fair profit.

One of the big questions is how can the job be done? Perhaps it is just a matter of doing some of the plant work a little more efficiently to allow more time to be spent in sales activity or in the public relation parts of the job.

In all of the turmoil and confusion associated with a growing business, one fact is almost a certainty—the small Independent company will have to grow along with the changes that are taking place in the community. Progress is something that cannot be denied. These statements aren't made to criticize or frighten.

Instead, here is the important point to remember: *The people who would work to put a "behind-the-times" company out of business are the same people who will first express public support and praise for the company working to do a good job. Thus, keeping up with the times is no longer just a medium or large company problem. The small Independent company must raise its sights, too.*

For many small companies the answer to the problem of providing better service doesn't lie primarily in electronic switching, nationwide toll dialing, or in elaborate carrier networks. Instead, it is more a case of doing a good fundamental job of providing telephone service in the company's local service area.

The problem is this. Lines must be built to serve new residential and business customers. Of equal importance, the service to all subscribers should be trouble-free, efficient and courteous. Telephone service should be handy to all the places where people live and work. Finally, telephone service should be readily available to the public.

A number of the forthcoming articles on the "ABC of the Telephone" series will be devoted to how these fundamental parts of the telephone job can be done better. As an example, articles on pole line construction will be included. Pole line construction is an important part of the program of extending service to new customers and in clearing up costly maintenance conditions. Some of the topics to be covered in these articles will be:

(1) How to reduce construction costs.

(2) The tools and equipment needed to do the best job in the least amount of time.

(3) Typical specifications applying to pole line construction.

(4) How to provide adequate protection.

(5) Placing guy wires and anchors.

The purpose of these articles on pole construction will be to show how time and money can be saved in building and maintaining the outside plant. In many small companies the manager must either supervise the project or work on the lines to help get this part of the job completed. Thus, every day and every hour saved amounts to time that can be used to good advantage on sales and public relations activities.

Other articles in the new group planned for the "ABC" series will discuss drop wire and station wire installation procedures. Many of the basic elements of these jobs are covered in Parts 20 through 27 of the series now available in the reprint editions, Volumes I and II. The new articles will cover the new techniques, procedures, and specifications of this part of the job.

Some of the important topics to be discussed are as follows:

(1) Specifications that apply when neoprene drop wire is installed from a cable terminal.

(2) When fuseless protection should be used.

(3) How to install jacketed station wire.

(4) How to install kitchen and game room telephones.

Another group of articles will be concerned with the problem of providing public telephone service. This topic will also be discussed from the plant man's viewpoint. Included will be information on these subjects:

(1) Where public telephones should be located.

(2) How outdoor and indoor booths should be installed.

(3) How to connect drop and electric service wires to an outdoor booth.

(4) What type of signs to use.

(5) Location of signs.

Compared to a few years ago, considerable progress has been made in making public telephones more readily available to potential customers. However, based on first-hand observation, during many miles of travel through the country, there still are many places

(Please turn to page 83)

ATTENTION SMALL COMPANIES!

This article has been prepared especially for you. Mr. Lee describes the challenge facing smaller companies in meeting the public demand for more and better telephone service. He tells what he will discuss in future "ABC" articles to help them meet this challenge. Progressive small companies will not want to miss these articles. Use the subscription blank below to order a subscription to TELEPHONY at the special 10-month introductory offer.

TELEPHONY Publishing Corp., 608 S. Dearborn St., Chicago 5, Ill.
Enclosed find $2.00 for each 10-month subscription to TELEPHONY sent to the following:

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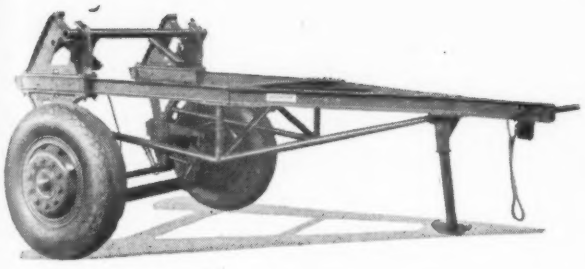

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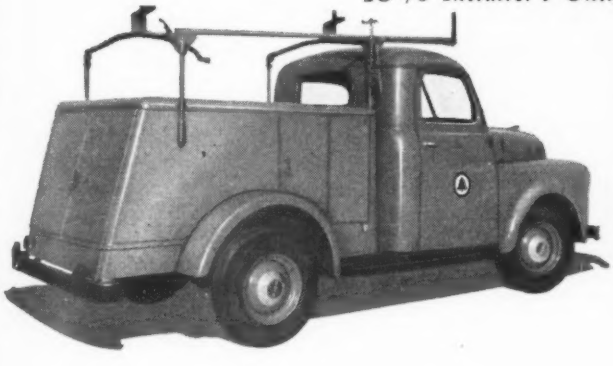
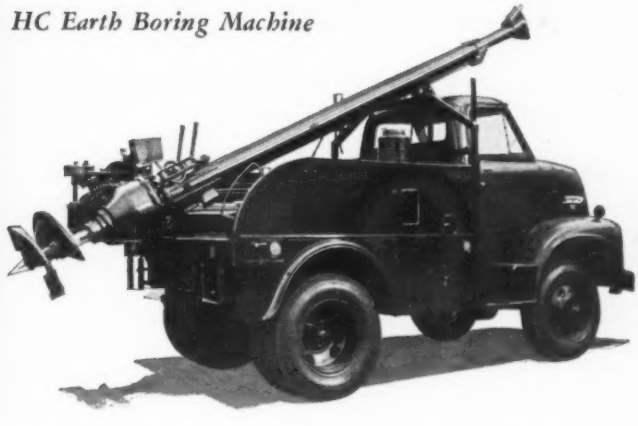


HC Earth Boring Machine



By building the tools that best fit the job, Highway has become America's major supplier of telephone and power line construction and maintenance equipment. All this equipment is Highway-designed and Highway-built in our own shops, assuring long service life at low operating cost.

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Highway IU-76 Installer's Unit is a specialized body for mounting on a half-ton truck. Scientifically arranged equipment compartments and tool carriers at sides and rear put all needed tools and materials within arm's reach.

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Sales and Service in Principal Cities

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THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITOR

PERHAPS YOU WILL be interested in a trip made by the writer recently to the home office of Aircraft-Marine Products, Inc., at Harrisburg, Pa. The purpose of this trip was to attend a meeting participated in by engineers of the Signal Corps Plant Engineering Agency, the Rural Electrification Administration, the Civil Aeronautics Administration, and the Aircraft-Marine company, to explore the possibility of using a solderless connector to make a water seal splice in the plastic-insulated conductors of plastic-jacketed cable. This requirement is considered desirable so that in the event the splice closure should fail and permit the entrance of moisture, it will not cause leakage between the conductor connections.

One of the new planes of Aircraft-Marine, a Beechcraft #N77M, with only 19 hours of flying time clocked, picked us up at 8 a.m. on a sunshiny morning at Washington National Airport. The writer rode in the co-pilot's seat and Harold Boerlin, Signal Corps engineer, and T. Odon Mathews, of the Aircraft-Marine's Washington office occupied the other two seats.

The pilot reported to the control tower by radio that 77 Mag was taxiing out for take-off to Harrisburg. The control tower instructed us to follow the Capital Airlines' Constellation then passing on the taxiway. When we arrived at the end of the runway, an American Convair was taking off with a Capital DC-3 in position. After the DC-3 took off, our pilot advised the control tower that we were ready for take-off.

The Capital Constellation had not finished its warm-up so the control tower instructed us to take off after the DC-3, but to make a sharp right turn as soon as possible in order to avoid their slip stream. This we did. I snapped a picture of the Nation's Capital in passing and after a smooth flight of 45 minutes at 5,000 feet we landed at Harrisburg Airport.

The Aircraft-Marine company makes good use of its aircraft. They presently have four Beechcrafts, four-place airplanes, and three full-time pilots. The president of the company is also a pilot in his own right. Recently, the company received a plaque for over a million hours of flying time without a single accident. These airplanes have proved invaluable for flying field service representatives and executives to and from Harrisburg and for making "hurry up" deliveries where regular supply lines prove inadequate.

Aircraft-Marine has contributed much to the development and use of the solderless terminal. Starting in its particular field in 1942, and due to a basic vitality, the company has had to expand 15 times in 12 years. Their facilities now include many separate plants located throughout central Pennsylvania. This plant dispersal program not only smooths out production and insures better deliveries, but it is also a safeguard in times of emergency.

The company now has a total of over 1,650 employes, about 250 of whom are engineers. In addition to maintaining complete sales, research, production and engineering staffs, separate production teams and outside laboratory facilities are frequently utilized.

A new administration building is now under construction in Harrisburg which will provide over 70,000 square feet of office space. The company maintains branches in principal cities throughout the United States and in several foreign countries.

The telephone industry was among the first to recognize the advantages to be gained by the use of solderless connectors. The compression-type sleeve for use in splicing line wire replaced the old double-barreled twisted sleeve with its associated high resistance troubles. This same compression-type sleeve has also long been used to splice drop wire and to make drop wire taps to bare line wire. Then, too, old time telephone men well remember the difficult task of soldering cord tips to tinsel conductors. Later, the compression-type cord tip eliminated these troubles and came into general use.

The soldered connection has long been used in the communications industry and, in general, it has done a good job. However, it cannot be said that it makes a perfect connection nor that it proves economical in every case. Although soldered connections are usually considered as strong, they will not withstand a constant load in tension nor severe vibration. In addition, the joint is subject to creep and cracking under very small sustained loads. Fatigue gradually weakens it. Electrical characteristics may become progressively poorer because of aging, cracks, or corrosion. There is poor vibration resistance and no uniformity of connections.

Solderless wiring provides identical, uniform connections made with a single operation of installation tools or press dies. Special skills and rigid inspection procedures are not required.

A special ratchet device on the crimping tool prevents the jaws from opening unless the handles of the tool have closed all the way. With this feature, fatigue, carelessness, or laxity on the part of the workman is avoided entirely. Good electrical conductivity is assured as the crimp deforms the wire sufficiently to expose fresh unoxidized surfaces.

The joining of plastic-insulated conductors in a telephone cable to provide moisture-proof connections economically is admitted to be a rather complicated problem. The removal of the plastic insulation from the small copper conductors without nicking is a slow and tedious task.

What appears to be the ideal arrangement at this time would be the use of an insulated compression-type sleeve with an inner tooth arrangement to pierce the insulation of the cable conductors. This would eliminate the

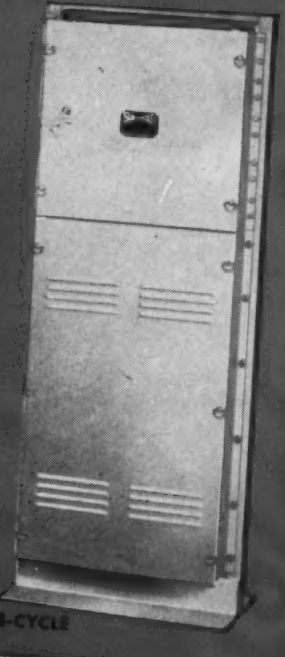
(Please turn to page 40)

Now! THREE GREAT SUB-CYCLES FOR MULTI-FREQUENCY RINGING SYSTEMS!

THE S-5 for SYNCHROMONIC RINGING
THE H-5 for HARMONIC RINGING
THE K-5 for DECIMONIC RINGING

THE S-5 SUB-CYCLE

With the introduction of the S-5 Sub-Cycle, Lorain now offers a complete line of multi-frequency ringing equipment. Each multi-frequency converter is true to the Sub-Cycle name and tradition in its freedom from moving parts, the positively locked ratio between the ringing frequencies and the a-c line frequency, the regulated ringing voltages, and the permanent, maintenance-free operation that Sub-Cycle users have learned to take for granted. Each Sub-Cycle utilizes circuits and principles of proven dependability.



THE H-5 SUB-CYCLE

The S-5 Sub-Cycle combines basic Sub-Cycle circuits with a unique conversion principle to give you a truly reliable converter for generating the **SYNCHROMONIC** frequencies, 30, 42, 54, and 66 cycles. When specified the model S-5 can be equipped to supply either 15 cycles or 20 cycles as the fifth frequency. **SEND FOR BULLETIN 169.**

The H-5, producing the output frequencies of 16⅔, 25, 33⅓, 50, and 66⅔ cycles, is an outstanding advancement in **HARMONIC** ringing machines because of the great operating advantages resulting from the perfectly stable ringing frequencies. **SEND FOR BULLETIN 166A.**

The K-5, which produces the **DECIMONIC** ringing frequencies 20, 30, 40, 50, and 60 cycles, was designed to meet the demand for a moderately priced static frequency generator to give five frequencies for selective ringing systems, and is applicable to new systems both large and small. **SEND FOR BULLETIN 157A.**

SOLD BY ALL LEADING TELEPHONE DISTRIBUTORS

THE K-5 SUB-CYCLE

LOTROL
MERS IN DEPENDABILITY
SUB-CYCLE

LORAIN PRODUCTS CORPORATION · LORAIN, OHIO

necessity of removing the insulation from the conductors and reduce the labor cost of cable splicing considerably. The problem is further complicated, however, by the necessity of inter-splicing of the various gauges of cable conductors, both copper and aluminum and the various bridging arrangements.

Many former service men will remember the difficulty of splicing type WD-1 field wire by the old cumbersome square knot method. This job can now be done in less than 30 seconds by Aircraft-Marine's new semi-automatic tool.

Special copper-clad connectors feed into the tool jaws from a spring-loaded magazine. After one squeeze of the handles, the tool ejects a perfect, insulated, waterproof splice that will withstand 80 pounds pull.

This tool developed by Aircraft-Marine in conjunction with the Signal Corps Engineering Laboratories is so easy to use that a wireman can cut, strip, and splice wire without even removing arctic mittens.

The successful splicing of Army field wire appeared as difficult as the splicing of cable conductors does now when the problem was first presented. We are confident that this new problem will be solved as successfully as was the one with field wire. The motto of Aircraft-Marine is: "Precision engineering applied to the end of a wire." This same engineering should solve the telephone cable splicing problem.

Anyway, we enjoyed our day's meeting with these experts and were pleased that they recognized the problem and are willing to investigate the numerous possibilities of its successful solution.

At 4 p.m. we again boarded the Beechcraft and in exactly 45 minutes of pleasant flight, we touched the runway of Washington's National Airport.

•

In Washington, D. C., telephone subscribers may obtain Weather Bureau forecasts by dialing WE 6-1212. Nearly 400,000 calls were made to that number last August when Hurricane "Connie" was approaching from the south.

This weather service was established by the Chesapeake & Potomac Telephone Co. back in 1939. Over 40,000 calls were completed the first year. During 1954, these calls had increased to a daily average of 65,000. The average in Chicago last year was only 55,000 calls per day.

The rush hours for weather information are between 7 and 9:30 a.m. There is another rush just before people begin leaving work in the evening.

Plant Man's QUIZ

BY RAY BLAIN, TECHNICAL EDITOR

Q. What can be done to obtain tone quality from multi-frequency ringers on a rural line?

A. Some of the old time multi-frequency ringers had poor tone qualities because the large resonant weights on solid arms were used to strike the gongs. One new type of ringer makes use of a small clapper weight on a flexible arm to strike the gongs and a separate resonant weight on a solid arm to obtain resonance.

By this unique design approach, the effective and pleasing tone quality, which is one of the outstanding features of straight line ringers, is retained in the multi-frequency type.

Because it has been possible to keep the average ringer impedance very high, the current consumed by these ringers is very low. The average impedance at 400 cycles is 100,000 ohms and the average impedance at 1000 cycles is approximately 400,000 ohms.

These new ringers will operate at voltages 40 per cent below the normal ringing voltages. As a result of this superior sensitivity, it is possible to use up to 10 ringers bridged on a single line.

•

Q. What precautions can be taken to prevent contractors from damaging underground cables during digging operations?

A. This is recognized as a serious problem and one that we will always have with us. Certain precautions can be taken, though, that will reduce, if not entirely eliminate, this nuisance and expense in any community. This is a system of education of the earth-moving contractors and the general public.

In the first place, the cable route should be well marked by signs advising anyone excavating in the community to first call the telephone company. Publicity should be considered in local papers advising the public of the damage to service and the cost to the telephone company due to accidental damage to cables caused by careless digging operations.

A new idea of the Bell System that appears to have merit is to print stickers reading: "Give us a break—instead of our cables." These are then placed on bulldozers and other contractor's machinery as a constant reminder that buried cables should be avoided.

•

Q. What type of air conditioning equipment is recommended for use in the telephone exchange to properly protect switching equipment from dust, high humidity and excessive temperatures?

A. Opinions differ somewhat in this connection, and we cite the following as one authority on this subject:

Provide an air conditioning system designed in accordance with average outside temperature conditions as established by the guide of the American Society of Heating & Ventilating Engineers to maintain within the building a relative humidity not exceeding 55 per cent and a room temperature not to exceed 80 degrees F. Circulated air should be brought through a filter that will properly remove dust, smoke and soot.

•

Q. Please explain the manner in which small gauge cable may be used in lieu of fuses to protect cable plant.

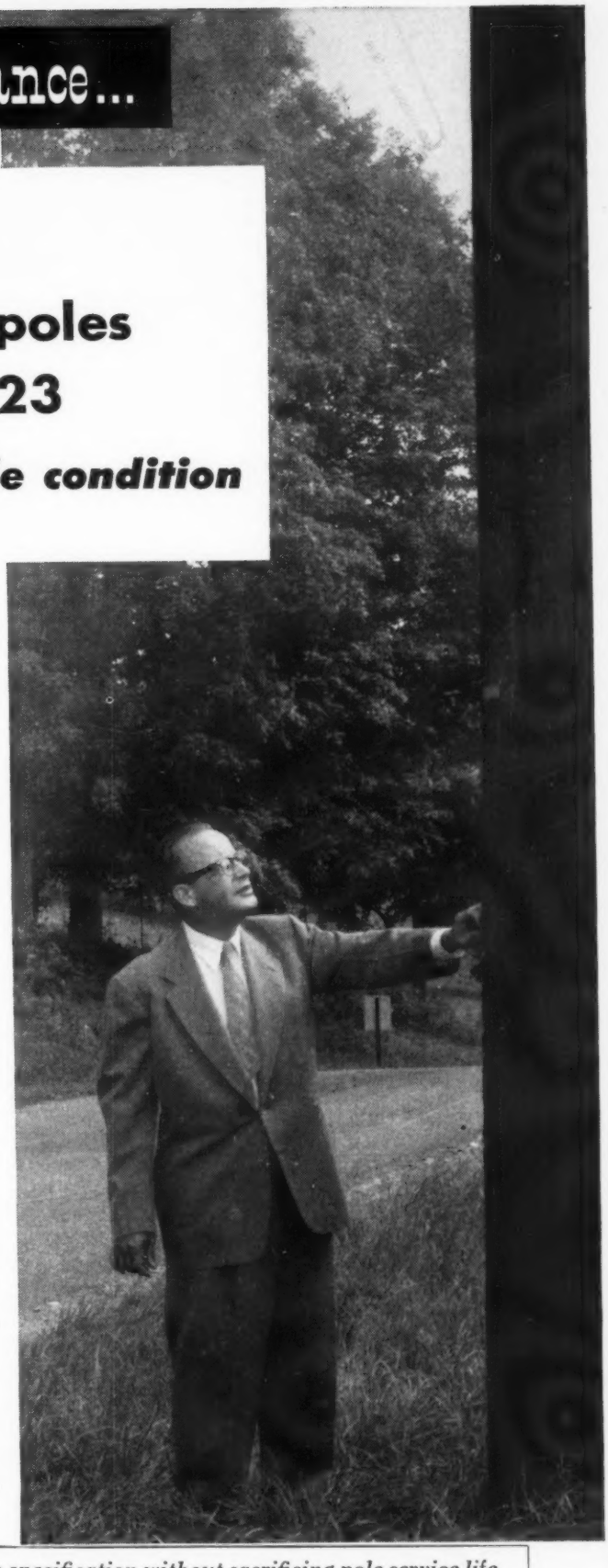
A. Fine gauge cable of 24 ga., or smaller, is often used in lieu of fuses to protect central office equipment. The impedance of the fine gauge cable limits the current on the conductors in the event of a power contact. The main frame protector springs will carry current up to the fusing point of the cable conductors and seldom will a power contact cause trouble in a fusing section of cable.

In general, the fusing cable should be at least 6 feet in length and installed at the junction of underground from the central office with the aerial cable, open wire or other plant exposed to power contacts.

Here's Proof of Performance...

Over 99% of pressure-creosoted poles installed since 1923

still in very good, serviceable condition



• All over the country electric and telephone utilities are taking advantage of the long-lasting properties of pressure-creosoted utility poles. Take the example of the New York State Electric & Gas Corp., Binghampton, New York.

Mr. H. L. Livingood, Distribution Engineer, tells about their use of pressure-creosoted poles. "It's hard to say when we started using pressure-creosoted poles. We set a few as far back as 1888, though we didn't start using them in real quantity until 1923. By 1931 we abandoned untreated poles altogether.

"It's difficult for me to estimate the service we expect from the creosoted poles, since they've already lasted over 30 years. We have had to replace a very few, far less than one per cent. We don't anticipate setting up a replacement program for creosoted poles until about 1960. And even then we expect that only a very few will be ready for replacement. So if you ask me to estimate the life of our creosoted poles, all I can say is, considerably longer than 30 years."

As this excellent case history proves, in many, many instances the life of pressure-creosoted poles far exceeds the expected 30 years. For more information on pressure-creosoting, and on USS CREOSOTE, get in touch with our nearest Coal Chemical sales office, or write directly to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

Mr. Livingood points out one of the 1923 poles. Pole is still strong, good for many more years of service.

You can obtain clean pressure-creosoted poles upon specification without sacrificing pole service life.

USS CREOSOTE

5-2400

SALES OFFICES IN PITTSBURGH, NEW YORK, CHICAGO CLEVELAND, SAN FRANCISCO AND FAIRFIELD, ALA.

USS

UNITED STATES STEEL

Now a subscriber calling for time, weather, or other types of special information hears a recorded announcement, without waiting for an operator. Service is fast—and operating costs are lower!

Automatic Recorder Announcers give you *new income... new economy!*

At last! Here's a proved sound, practical way to handle special information calls. You record the information on one of the four Automatic Recorder Announcers, and it is "played-back" to callers automatically, just as needed. Your operators are free for calls actually requiring individual attention, and are able to handle them more promptly. What's more—by selling time for advertisements to accompany your weather and time announcements, you can augment the revenue of your company.

With Automatic Recorder Announcers, messages sound clear and lifelike. All four Announcers record magnetically on tape, which gives *smooth* reproduction—no "breaks" or changes of pitch. There are no photoelectric cells or phonograph discs to cause trouble—no wear to speak of. You can record as easily as talking on the telephone. Your message will last for years—or it can be changed at any moment.

Maintenance involves only a few moments, a few times a year. If repairs should ever be needed, any qualified radio serviceman can do the job handily. Ask for Circular 1845 today. Get full facts on Automatic Recorder Announcers that can improve your service, cut costs, and earn new revenue for you. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or, call HAymarket 1-4300.*

AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC DIAL TELEPHONE

Automatic Time Announcer

- Announces time every 15 seconds. Each announcement preceded by a commercial or public-service message; up to six 6-second messages can be recorded and changed at will.
- Time announcements come already recorded.
- 50 callers can listen at once.
- Audible alarm tells of current failure or abnormal operation of time-tape.

Type FML Recorded Message Announcer

- Provides fire-location information for volunteer fire departments, for theatre programs, or for any other frequently-changed information. One 6½ or 12-second message is repeated until the Announcer is stopped.
- Message erased and new message recorded in one fast operation — by remote microphone, if desired.
- 30 callers can listen at once.
- Batteries provide talking power for manual standby in case of current failure.

Type MCF Recorded Message Announcer

- Provides repetitive interception of calls to disconnected lines, dead levels, etc. Up to five 6½ or 12-second messages transmitted continuously or on stop-start basis.
- 30 callers can listen at once.

Type VML Recorded Message Announcer

- Provides weather, advertising, livestock market news, posting of toll-call delays, or other information in one message which may vary in length to a two-minute maximum. Announcer operated as needed.
- Old message erased as new message is recorded.
- 30 callers can listen at once.
- Messages can be recorded from remote location.

GENERAL SYSTEM

"See the First Building and Loan Company today about easy new-home savings plans. At the tone, The Time will be 4:32 and one quarter."
"Fire in grain elevator at railroad yards. High-pressure truck will pick up volunteers along Front Street."
"You have dialed a Wrong Number. Please look in your directory."
"The Weather forecast is fair with slowly rising temperature. Low tonight, 64. High tomorrow, 78, with slight haze in afternoon."

Ringing Generator Load Calculations

By C. H. ACHENBACH

IN THE PAST, selection of the proper capacity ringing generators has been on a more or less haphazard basis because of the complexity of accurately estimating the load. In many cases, there has also been a laxity on the part of the operating companies in not recording the actual loads in existing offices so that they could make a reasonable forecast on their new exchanges.

Engineers, being generally cautious by nature, tend to play safe and order ringing generators that they are certain will be large enough for the job. One operating telephone company recently used a recording wattommeter to take some ringing drains in one of its existing offices with rather startling results. They had some 50-watt ringing machines, but, due to additions, were in doubt as to whether these machines were large enough for the office. They had purchased some 150-watt machines, but had not yet placed them in service, delaying the installation until they had made current measurements. The highest readings obtained on the multi-frequency generators during the busy hours ranged from only five watts to approximately 17 watts.

The Bell System started making measurements of ringing drains in various offices a number of years ago and learned that the actual drains were much less than the calculated load. On the basis of these measurements, new drain studies were made and new formulas prepared to more correctly reflect the ringing load requirements. These formulas were rather complicated. In this article an effort is being made to simplify them as much as possible without seriously affecting their accuracy.

Certain factors must be known or closely approximated in order to obtain reasonable accuracy. Values are given for certain of the factors making up the formula that should prove satisfactory. It is highly desirable to know the number and impedance of the various types of ringers used. The impedances of ringers vary considerably. The high impedance type requires from five to 10 mils to ring the subscriber's bell, while the low impedance type draws 15 to 20 mils.

The formula is as follows:

$$\frac{\text{B.H.C.} \times D \times AT \times F}{3600} = \text{Drain in mils}$$

for single frequency offices or

$$\frac{\text{B.H.C.} \times D \times AT \times F}{3600 \times 5} = \text{Drain in mils}$$

for offices having multi-frequency ringing.

B.H.C. (busy hour calls) is the number of calls initiated during the busy hour.

Most offices have a mixture of different types of subscribers, i.e., business, residential, and multi-frequency party lines.

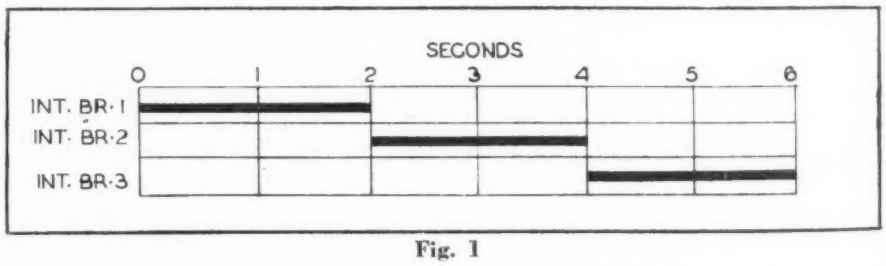


Fig. 1

Business subscribers may be assumed to have a calling rate of one call per hour.

Residential subscribers are assumed to have a calling rate of .25 calls per hour.

Some subscribers have extensions which do not change the calling rate, but will require extra ringing current to ring two or more bells. Thus, a two-party line would have a calling rate of .50; a four-party line, a calling rate of 1, and a 10-party line, a calling rate of 2.5.

Assume an office having 2,000 business lines, 3,000 residential lines averaging two subscribers per line, or one subscriber with one extension, and 300 multi-frequency lines having an average of eight subscribers per line. The busy hour calls would then be:

2,000 x 1 = 2,000 B.H.C.
2,500 x .5 = 1,250 B.H.C.
300 x 2 = 600 B.H.C.

Due to the heavy drain for 10-party lines, the load should be calculated separately from the business, and single and two-party residential lines.

It would be conservative to use the figure of 1 as the calling rate for all lines except the eight or 10-party lines which should use a figure of 2.

D (Drain in Mils Per Call)

This factor varies depending upon the type of ringer used in the subset. The old subsets had low impedance ringers which would draw about 17 mils. Later subsets use high impedance ringers and draw five to 10 mils. This applies to business and residential lines other than multi-party lines. Multi-party lines would take between 25 to 80 mils per call.

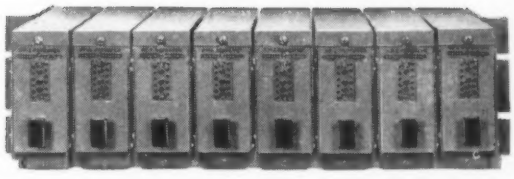
AT (Answering Time in Seconds)

That is the average time it takes a subscriber to answer or remove the receiver from the switchhook.

The average answering time for business lines is about 10 seconds and for residential lines about 20 seconds.

Since most telephone exchanges have both business and residential lines, the answering time would be between 10 and 20 seconds or about 15 seconds average.

(Please turn to page 56)



EIGHT COMPLETE REPEATERS mount on a 19″ rack, or 10 on a 23″ rack. Special fins on transistors eliminate need for cooling fans, regardless of number of repeaters in installation.

Saves Space

Using transistors as small as a pencil eraser, instead of bulky tubes, Type AT-2 measures only 5¼″ high, 2″ wide, and 7½″ long.

Saves Maintenance

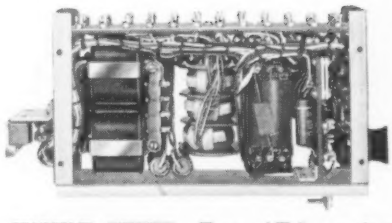
Transistors last many times longer than vacuum tubes, and are almost free from aging and dissipation. You can forget tube failures, forget frequent checks of output levels.

Saves Power

Type AT-2 is fully self-contained; it needs no power supply other than your exchange battery. Drain is only about 1/10th the power required for comparable vacuum tube units.

Offers Simple Installation

Your own employees can install Automatic's Type AT-2 Voice Frequency Repeater. No electronic training necessary. A specially-designed Installer's Set is available for quick matching of network to line.



INSIDE VIEW: Type AT-2 consists of a transformer, an amplifier, and a balancing network. Operates on the principle of combined negative and positive feedback voltages. Works best at or near midpoint of line.

Has Many Applications

Maximum gain is about 10 db on non-loaded cable or open wire, and from 6 to 8 db on loaded cable or wire. You can use Type AT-2 to raise transmission to toll grade, or to permit use of smaller-gauge cable on inter-office trunks, long subscriber lines, foreign exchange lines, P-B-X tie trunks, tandem and tributary trunks, centralized intercept and information trunks, loaded and non-loaded cable, and other applications.

Get Full Information Today!

Fully-tested Type AT-2 offers substantial savings you cannot overlook. Write today for new Circular 1844 which gives complete details and handy ordering data. Address: *Automatic Electric Sales Corporation, 1033 W. Van Buren St., Chicago 7. Or call HAymarket 1-4300.*

AUTOMATIC AE GD® ELECTRIC

ORIGINATORS OF THE AUTOMATIC DIAL TELEPHONE

GENERAL SYSTEM

F (Factor of Safety)

$$\frac{\text{B.H.C.} \times D \times AT}{3600}$$ gives the average drain of the office during the busy hour. To take care of peaked ringing (since calls are not always spaced evenly) and "don't answer" calls, this average drain must be multiplied by factor F. Factor F varies considerably, ranging from 1.5 in large offices to 3 or 4 in small offices. Fig. 2 shows two curves by which values for F can be determined. Curve A shows the factor for business and residential lines and curve B for multi-frequency party lines.

Drains for multi-frequency party lines should be considered separately since the drains per call are high, compared to drains per call for business and residential lines, and range from 25 mils to 80 mils per call. Ringing generators should always have sufficient capacity in small offices to ring at least three lines simultaneously. Thus, when the multi-frequency lines in an office number less than 325, there is no need to calculate this drain.

Also, the average drains for multi-frequency lines should be divided by the number of different frequencies used, since there will be several ringing generators (usually five) furnished to take care of the ringing load.

The following is offered as an example of how this formula may be used:

2,000 business lines.
2,500 subscribers' lines averaging two parties per line.
300 multi-frequency party lines averaging eight parties per line.

Assume only high impedance ringers are used requiring 10 mils current. We have:

$$\frac{\text{B.H.C.} \quad D \quad AT \quad F}{(2000 \times 1) \times 10 \times 10 \times 1.8} = 100 \text{ mils}$$
$$\frac{3600}{}$$

$$\frac{(2500 \times .5) \times 10 \times 20 \times 1.8}{3600} = 125 \text{ mils}$$

$$\frac{(300 \times 2) \times 40 \times 20 \times 4}{3600 \times 5 \text{ (No. of freq. gen.) per generator}} = 107 \text{ mils}$$

Another example would be where an office has 4,000 lines of business and individual residential lines having an average calling rate of 1 with an average answering time of 15 seconds. Assume that 2,400 lines have high impedance ringers and the remaining 1,600 have low impedance ringers. The ringing drains for an office of this size would be:

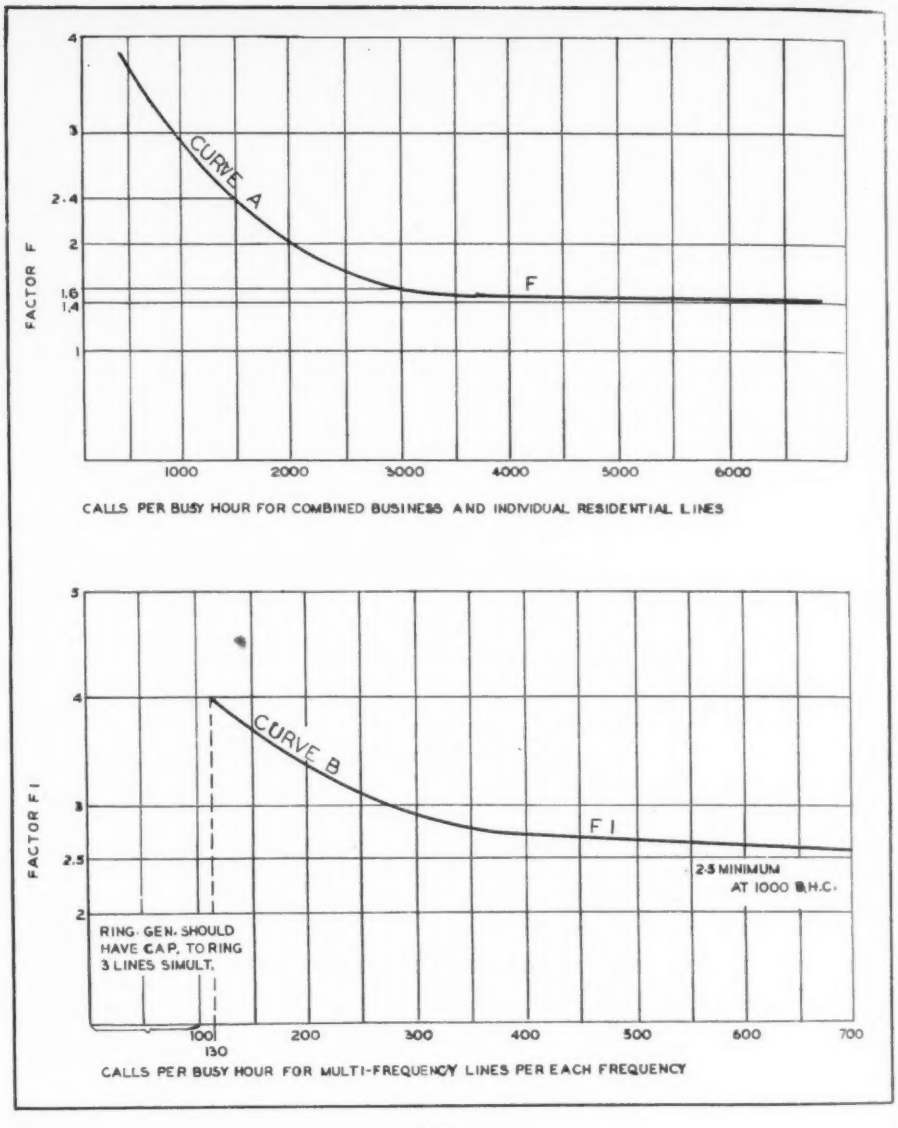


Fig. 2

$$\frac{2400 \times 10 \times 15 \times 2}{3600} + \frac{1600 \times 17 \times 15 \times 2}{3600} =$$
353 mils

The size and capacity of the ringing generators can be reduced by using ringing interrupters to divide the load. The ringing cycle is usually six seconds, with a ringing period of 1½ or two seconds and a silent period of 4½ or four seconds. Thus, if we have a ringing period of two seconds, the ringing load can be divided into three parts by using three interrupters so timed that only one-third of the subscribers can be rung during the first two seconds of the six-second cycle, another third during the second two-second period, etc., as shown in *Fig. 1.*

In the first example, a 332-mil generator would have to be furnished to take care of the load if no interrupters were furnished. By using three interrupters, a 125-mil machine could be used. This would apply to the first generator or lower frequency generator only. The other multi-frequency generators would not need interrupters since the average drain is only 107 mils. This is assuming that the business and individual residential lines are all of the same frequency and served by one generator.

Conditions may develop wherein a large number of individual subscribers and a small number of multi-frequency lines in an office would require a larger generator to take care of the individual lines than would be necessary to handle the multi-frequency lines.

As mentioned previously, it is a waste to provide oversize ringing generators. Not only is this a waste in the purchase of more expensive equipment, but in power consumption as well. The best practice to follow is to provide ringing equipment of the proper size and make certain that it is efficient in the use of commercial

(Please turn to page 83)

Conserve

CIRCUIT TIME
OVERTAXED FACILITIES
OPERATING FORCE

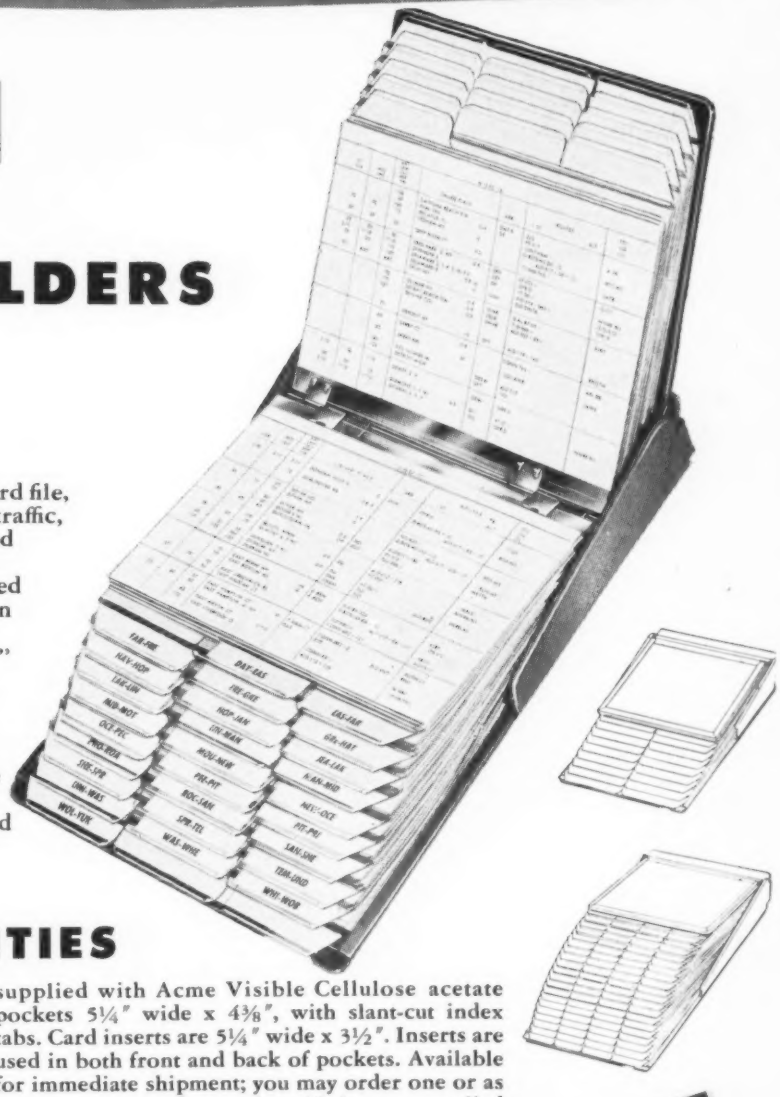
REDUCE COST OF OPERATION • IMPROVE CUSTOMER SERVICE

with

ACME VISIBLE

MULTI-CARD BULLETIN HOLDERS

for Long Distance Inter-Toll Dialing



One operator with her individual Routing Multi-Card file, containing over 95% of the routes for originating traffic, can do the job faster and more efficiently.—No need to bring in a second operator.—No guess work; routes are before her—*visible.*—Calls are completed quicker.—By this method of centralized provision of Routing records, more routes are available to the Central Office force. Consequently less "121" calls go over the LD circuits. With the use of the Acme Visible Multi-Card Bulletin Holders, each operator is able to determine over 95% of her routings and rates. Operator can immediately compute charges on Coin Box calls or where there has been a request for T & C. By not trunking to Rate & Route operator, less operator time is needed at these positions.

3 SIZES • 9 CAPACITIES

Acme Multi-Bulletin holders are carried in stock in 3 sizes—with 10, 15 or 20 hangers. Each unit is available with 2, 3 or 4 pockets per hanger to provide a wide range of capacities for listing towns frequently called—from 720 to 2,880 listings using 6 lines to the inch and from 960 to 3,840 listings using 8 lines to the inch. They are supplied with Acme Visible Cellulose acetate pockets 5¼" wide x 4⅜", with slant-cut index tabs. Card inserts are 5¼" wide x 3½". Inserts are used in both front and back of pockets. Available for immediate shipment; you may order one or as many as you need at a time. Units are supplied complete with insert cards and labels for index tabs.

ACME VISIBLE RECORDS, INC. CROZET, VIRGINIA

District Offices and Representatives in Principal Cities

ACME VISIBLE RECORDS, INC., Telephone System Division, Crozet, Virginia
Please send us illustrated booklet

☐ #994 on Acme Multi-Card Bulletin Holders ☐ #982 on Acme Flexoline for Telephone Companies

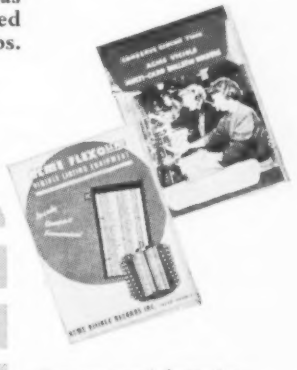
☐ Have representative call. Date..... Time.....

☐ We are interested in Acme Visible equipment for ..... records.
KIND OF RECORD

Company..... Attention.....

Address.....

City..... Zone..... State.....



Here are two informative booklets illustrating and describing various units which have been designed for, and use-tested by, telephone companies throughout the country.

Send for your copies today!

Some Observations on

Fair Telephone Rates

This general, down-to-earth discussion of the important subject of rates was presented for the benefit of small telephone companies at district meetings of Missouri Telephone Association.

IN CONNECTION with establishing rates for public utility services, which include telephone service, the following factors are usually considered:

(1) Current expenses of doing business which include
  (A) Operating costs.
  (B) Taxes.
  (C) Interest on debt.
  (D) Depreciation or wear and tear not correctible by repairs.
(2) A profit for the owner.

It is usually rather simple to determine what the cost of doing business is, since this is reflected by accounting and other records.

There is one exception, however, which relates to the item of depreciation.

The rising cost of capital items of property has brought about a situation whereby it is not possible under present rates to recover the money needed to replace the capital worn out in giving service.

Many examples could be given, and have been previously presented to prove this. As a result, the business, in order to survive—let alone expand—must constantly obtain more capital.

It is not possible to raise this capital within the business, since rates for service now obtained do not allow for the accumulation of any appreciable surplus for re-investment in the business. Therefore, the money needed to make up the difference must be obtained by attracting added investors who are going to share in whatever profit is already being made.

With respect to the item of profit, there is considerable difference of opinion as to what constitutes adequate return.

In general, regulatory bodies hold to the idea of return based on a percentage of original cost, less depreciation, and also to the theory of depreciation based on original cost.

This would not create any great problem if it were not for the fact that inflation has decreased the purchasing power of the current dollar and inversely increased the purchasing power or value of dollars spent prior to now.

The problem is simply this: A rate of return based on original cost, less depreciation based on original cost is insufficient to—

(1) Provide money to replace property worn out in the service.

(2) Provide a reasonable amount of surplus consistent with general business conditions.

The solution lies either in increasing the rate of return or adjusting the rate base from "original cost, less depreciation," to "fair value."

In considering the capital invested in the business for the purpose of rate making, it is very easy to become diverted from the real purpose. By this, is meant that in the final analysis the rates are for *services* and are not *necessarily* relative to the rate base.

To express it in another way, one might use a parallel example to illustrate the concept.

Many people buy milk. In this instance the milk is the product or the service. The plant producing the milk is the cow and the housing and distributing facilities.

The buyer or rate-payer, in this instance, has certain needs:

(1) He wants good milk.
(2) A dependable supply.
(3) A fair price.

In this respect he has the same needs or requirements as where he buys telephone service in that he wishes good, dependable, fair-priced service.

If the price of milk were based on original cost, less depreciation, it would result in a price which would imply that as cows became unproductive, or worn out, and had to be replaced, a replacement could be obtained for no more capital outlay than the original. Similarly, when a delivery truck wore out, no consideration would be given to the fact that the new truck costs more than the old one.

In actual practice, however, the consumer pays for milk and while it may be argued that he, therefore, pays for the cow, the barn, etc., *he does not;* he pays for the *use* of it, and in the real sense of values, *he really pays for the use of money.*

In reality, the price of milk is based on:

(1) Current value of capital items used in production.
(2) Current value of expenses of production and distribution.
(3) In other words—fair value.

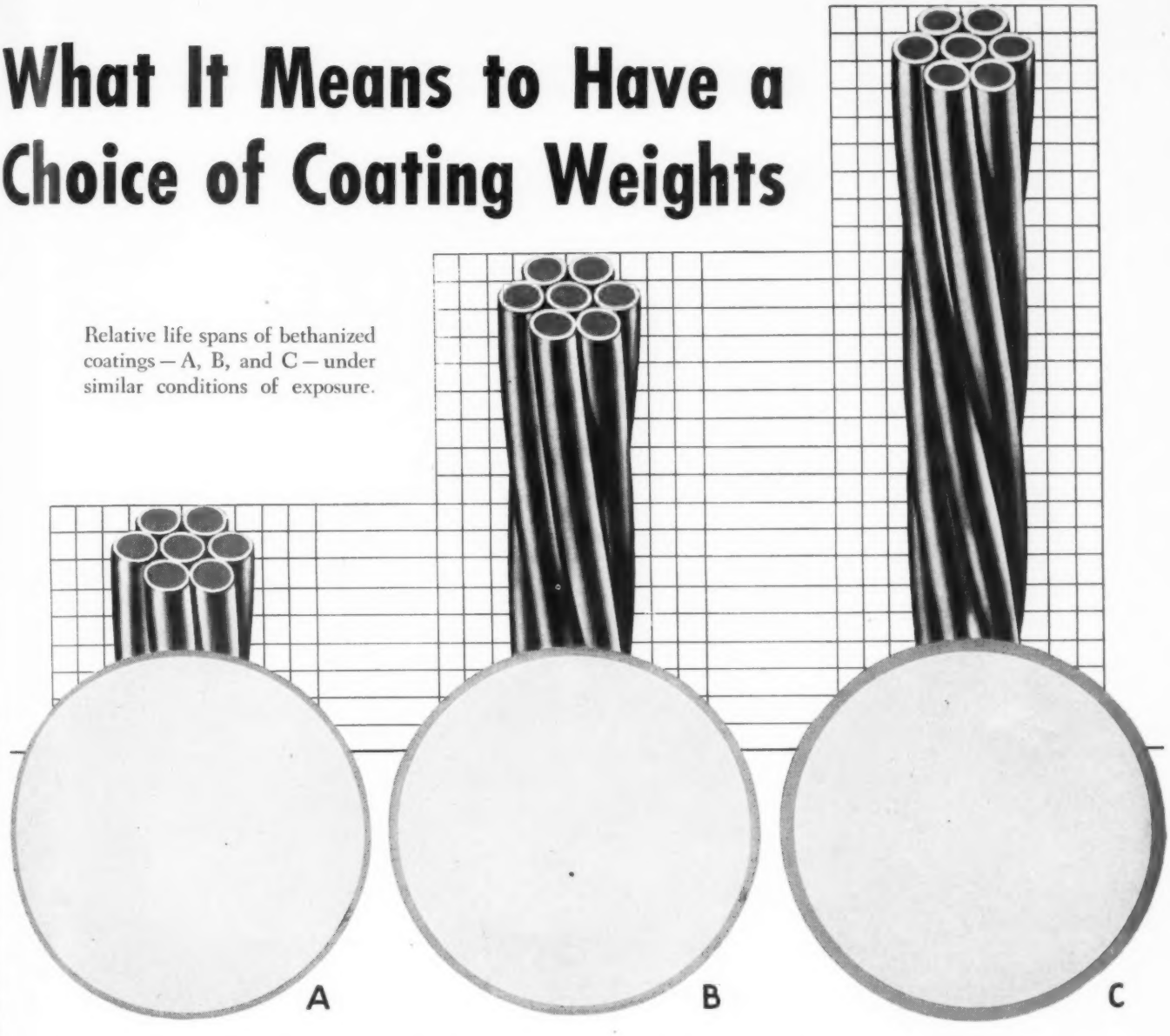
If this were not the case, the supply of milk would soon dry up because the sources of capital invested in this business would be diverted elsewhere, or the capital itself would be lost because of insufficient depreciation reserves, or surplus, generated within the business.

In attempting to place a fair value

(Please turn to page 62)

What It Means to Have a Choice of Coating Weights

Relative life spans of bethanized coatings — A, B, and C — under similar conditions of exposure.



For a good many years (fortunately, they're ancient history, now) line designers were limited to an extra-galvanized zinc coating when they specified steel strand. If the strand lasted as long as the line, well and good. If not, it had to be replaced.

That expensive situation was largely corrected when Bethlehem developed its bethanized strand, and made three choices of coatings available. Bethlehem's coating A is equal to extra-galvanized; coating B is twice as thick as A; coating C, three times as thick as A.

In all three cases the *quality* is identical. The only difference is in the weights.

So which coating should you select for your particular installation?

That depends on the life-expectancy of the line as a whole. In many cases, the A-weight is entirely satisfactory; but for the long-term jobs, one of the heavier weights of coating is the logical choice. Being thicker, both B and C will outlast A by years, under similar conditions. Yet these heavier coatings cost *very little more.*

By specifying bethanized strand with the proper coating-weight, you can easily match strand life to line life. It's an economical step, to be considered by every line designer. May we give you full details?

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

BETHANIZED STRAND

BETHLEHEM STEEL

on telephone service, it is obvious that one must relate it to the fair value of the business itself.

It does not appear logical that one could establish fair value of a service without considering the fair value of the components that generate the service.

In developing the fair value of anything, it also seems logical to determine what is the intent or reasoning behind the valuation process.

For example, in the case of the price of milk. The fair value of a cow as a *milk producer* may vary from the fair value of the same cow if converted to *meat* or used as *breeding stock.*

Similarly an approach to setting a fair value on telephone rates may involve something more than a strict and inflexible approach to a given problem.

In the setting up of telephone rates, we are asking the rate-payer to pay a fair price for service.

We are not asking him to buy the business, we are not asking him to assume any risk, we are not burdening him with the management.

He, in turn, is asking for a service which to him may have varying and divergent values.

Thus, we may find a person to whom telephone service is a necessity and who can and will pay any price to get it. On the other hand, there are many who buy telephone service because it is a luxury or will pay a limited price.

One cannot logically use either extreme to set a price, nor can one say that a mean of these would be fair. It is rather a situation where fairness to both buyer and seller are important.

The seller in this case takes practically all the risk, he assumes the burden of management and he invests money irrevocably in property with little or no recovery or salvage value.

At this point, one might interpose the thought that no one is forced into the telephone business and, therefore, entered into it knowingly and prepared to take the risks.

While this is essentially true, there is also the fact that entry into the telephone business is not of recent date and that if the conditions which now exist had been known, it would have caused past rates to take into account the inflation which is responsible for the whole problem.

There also remains the fact that once great sums of money and other factors have been dedicated to the venture that it would be difficult, if not impossible, to recover any of this if one were to abandon the matter, or retreat from the course which is dictated by many forces other than financial. These forces include—

1956 Convention Calendar

Association	*Date*	*City*	*Hotel*
Louisiana	Feb. 8 and 9	New Orleans	Jung
Minnesota	Feb. 13 and 15	St. Paul	St. Paul
Kentucky	Mar. 6	Lexington	Phoenix
Texas	Mar. 12 and 13	Dallas	Baker
Ohio	Mar. 27 and 28	Columbus	Deshler Hilton
Nebraska	Apr. 3 and 4	Omaha	(hotel unannounced)
Iowa	Apr. 10 and 11	Des Moines	Fort Des Moines
Indiana	May 9 and 10	Indianapolis	Claypool
Illinois	May 16 and 17	Peoria	Pere Marquette
Wisconsin	May 16 and 17	Madison	Loraine
Pennsylvania	May 22 and 23	Bedford	Bedford Springs
Washington-Oregon*	May 31 and June 1 and 2	Portland, Ore.	Multnomah
Kansas-Missouri*	June 4 and 5	Kansas City, Mo.	Muehlebach
California	June 6 and 8	San Francisco	Fairmont
New York	June 11 and 13	Schroon Lake	Scaroon Manor
Michigan	Sept. 6 and 7	Grand Rapids	Pantlind
Arkansas	Sept. 17 and 18	Hot Springs	Arlington
Rocky Mountain	Sept. 20 and 21	Salt Lake City, Utah	Utah
North Carolina	Oct. 4 and 5	Pinehurst	(hotel unannounced)
USITA (Annual convention)	Oct. 15, 16 and 17	Chicago	Conrad Hilton

*Joint convention

(1) The monopolistic character of the business, which is amply offset by regulation.

(2) The ambitions of the owners and especially the managers and employes who do not believe that failure is inevitable.

(3) The needs and desires of the telephone-using public.

(4) The national interest.

One could also state that no one is forced to supply milk and it follows that if conditions are not favorable no one will take the risks involved, and it could then be a question of each individual arranging for production to meet his own needs. Since most of us are, by circumstance, not in a position to keep cows and, similarly, are unable to supply our own telephone needs, there remain as the only avenues either private enterprise or collectivism in some form.

Whether or not collectivism is as good as private enterprise remains a question only to those who do not wish to know the facts. At any rate, it would be no cheaper.

Regardless of theory, however, the telephone business is largely a private enterprise and if it is to exist, operate and expand, it must enjoy a climate which is favorable to private enterprise.

In this respect, it asks no favors or special consideration beyond that which applies to private enterprise generally.

The point of monopolism could be raised here as one of the favorable aspects of the telephone business not enjoyed, for example, by the milk producer.

It is believed that this is not a favor or consideration at all, but is rather a condition which is natural to the business and is not without compensating features such as regulation in many forms.

Now as to fair value. It has been stated earlier herein that fair value of service relates to—

(1) Fair value of capital items used in producing the service.

(2) Fair value (current value) of the expense of production.

In analyzing this, we will consider first fair value of the capital items used in producing the service.

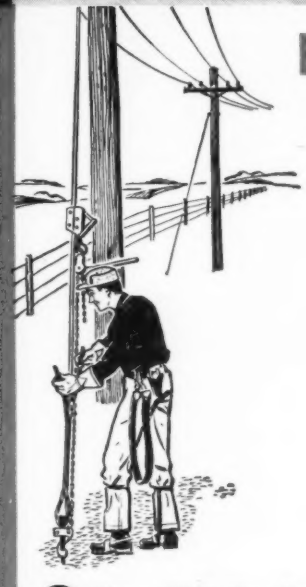
In determining "fair value" of the capital assets, there is no intent to alter the books since this is not what is intended. "Fair value" of the capital items used in giving service is only being determined because there is no other available *rate base* which would substantiate or support the rates finally arrived at. In fact, one would not need to do anything if it were not for the effect of inflation. It is, therefore, well to remember that, in fixing a fair value on the capital structures, we do so only as a means of setting up *"fair rates of return."*

In looking, for a moment, into the "fair" or so called current value of ex-

(Please turn to page 84)

HERE'S ANOTHER WAY...

Preformed Guy-Grips CUT GUYING COSTS!

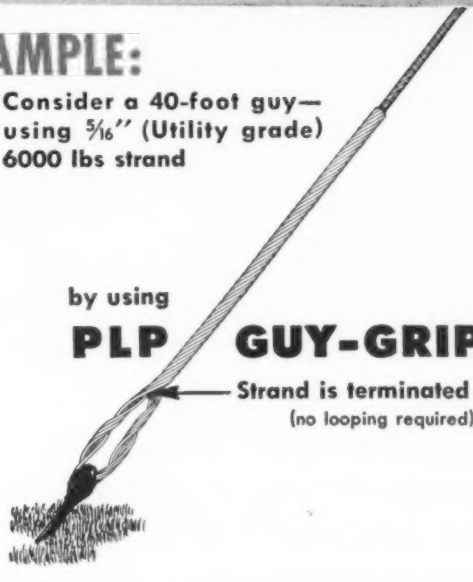


EXAMPLE:

Consider a 40-foot guy— using 5/16" (Utility grade) 6000 lbs strand

by using

PLP GUY-GRIPS

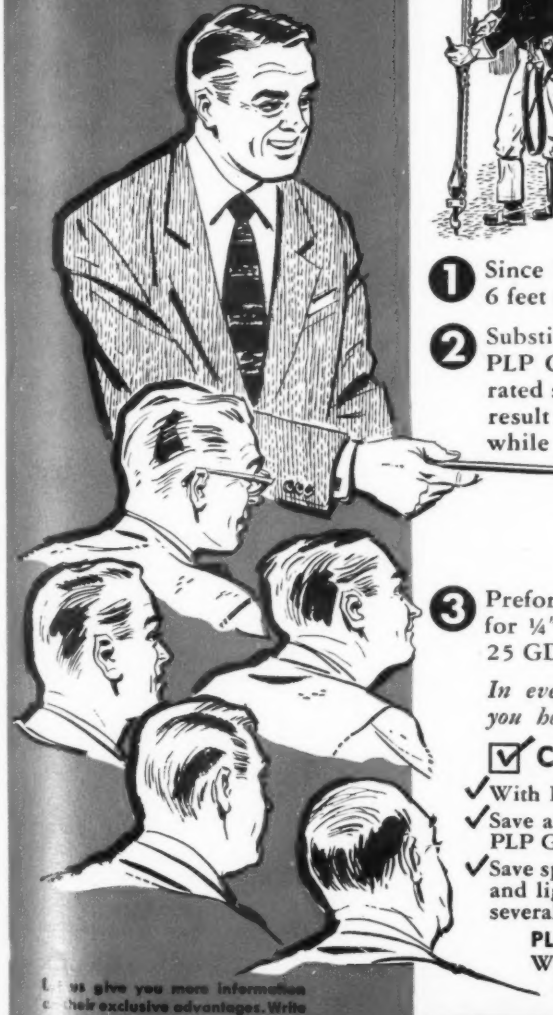


Strand is terminated here
(no looping required)

1 Since PLP Guy-Grips eliminate looping, strand saving of 6 feet or more per guy results. **SAVING: $.29 per guy**

2 Substitute ¼" Extra High Strength Strand — rated 6650 lbs. PLP Guy-Grips make this possible since they hold the full rated strength of E.H.S. Strand. The following strand savings result (current cost of 5/16" galvanized strand is $1.93 per guy while ¼" E.H.S. costs $1.36 per guy)*: **SAVING: $.57 per guy**

TOTAL STRAND SAVING ALONE: $.86 per guy



3 Preformed Guy-Grips cost only $.55 each for ¼" E.H.S. Strand size. (PLP Cat. No. 25 GDE-¼")

Compare this cost with your current fitting.

PLUS LABOR SAVINGS

In every Preformed Guy-Grip installation, you hold the full strength of the strand.

☑ CHECK THESE ADDITIONAL SAVINGS:

- ✓ With PLP Guy-Grips, installation savings range upwards to 50%.
- ✓ Save an additional 10% by using 3-wire strand instead of 7-wire. PLP Guy-Grips will hold 3-wire strand equally well.
- ✓ Save space and inventory costs by standardizing on PLP Guy-Grips and lighter E.H.S. Strands. One size strand can be substituted for several sizes and grades previously used.

PLP GUY-GRIPS ARE ALSO AVAILABLE IN COPPER-WELD, BRONZE, AND STAINLESS STEEL.

**Based on current strand prices—75,000 feet to carload lots.*

[illegible] gives you more information on their exclusive advantages. Write or call Preformed Line Products Company: Call EXpress 1-3371.

PLP GUY-GRIPS DON'T SLIP . . . even under impact!

Made in accordance with or for use under one or more of the following U.S. Patents: 2,275,019; 2,587,521; 2,609,653; 2,691,865; other patents pending.

PREFORMED LINE PRODUCTS COMPANY
5349 ST. CLAIR AVENUE • CLEVELAND 3, OHIO

construction and maintenance DIGEST

- **Wire winks at weather**
- **Profitable noise**
- **Die-hard battery**
- **Guard 10 lines**

Published every week to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson Company

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

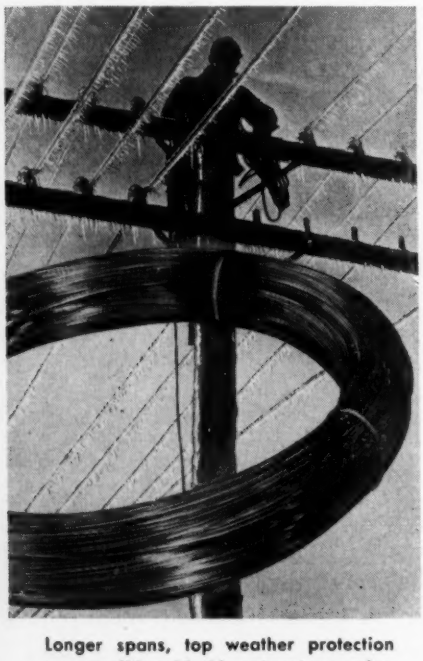
How to laugh at ice, wind

Ice and wind can play havoc with your service—and maintenance costs—when line wire is too weak to withstand the onslaught of weather.

To save the nuisance and expense of excessive service calls, we have available a wire of exceptional strength—rustproof Copperweld Line Wire, a tried and true friend of telephone men all over the world.

Its rugged strength permits longer spans, with greater protection against storm damage. Its copper covering provides better transmission characteristics than any other high-strength conductor.

Fast delivery available from your Stromberg-Carlson supply representative.



Longer spans, top weather protection are possible with this extra-strong wire.

Noise can be money!

Take a business subscriber who has a telephone in some extremely noisy location—and who has finally decided to do something about it. Would you rather have him spend money in building a soundproofed booth—or give you the money as monthly income on a telephone which completely licks the noise problem?

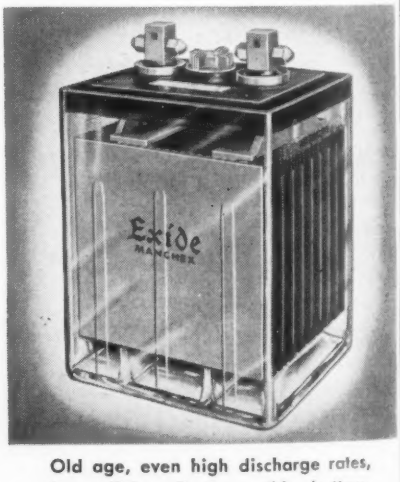
The GAI-PHONE is such an instrument. It has a special transmitter that actually creates a "Zone of Quiet" around the handset—even in a spot as noisy as a boiler factory! It costs the subscriber less than a booth—and you get the revenue!

Your Stromberg-Carlson representative can offer prompt delivery on your order.

Protect yourself from battery failures

You can use Exide Manchex Batteries for central office and private branch exchange equipment, and be sure you'll get a supply of power when you need it. These batteries have been proven daily in exchanges of every size, and for 67 years Exide Batteries have been serving the telephone industry.

The manchester positive plate with its exclusive button-type construction provides exceptionally long life. Latest developments in molded glass jars permit compact space-saving installation.



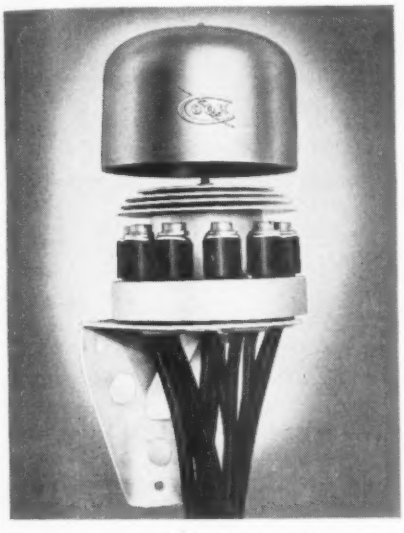
Old age, even high discharge rates, have little effect on this battery.

Heavy terminal posts with copper inserts provide extra conductivity for sustained voltage at high discharge rates. Microporous rubber along with slotted plastic separators, are impervious to chemical and electrical reactions. Plastic spacers assure plate alignment.

Manufactured by Exide . . . supplied to you by your Stromberg-Carlson representative.

The new 5 circuit Hy-Cap Power Cross Protector

Whenever telephones are in joint occupancy with power lines, a heavy-duty protector should protect the telephone lines against destructive power cross.



Now—Protect 5 circuits against power crosses with one protector.

Such protection can now be had when the Cook Electric Company's Hy-Cap 5 Pair Power Cross Protector is installed. This unit mounts on a type 10B cross-arm and will protect 10 lines. Connections are made with pre-cut No. 10 plastic insulated copper wires which terminate on rugged discharge carbons. There is just one ground wire for easier installation. The protector will break down at 3000 volts and will continue to ground the fault current as long as it exists.

A single pair Hy-Cap Power Cross Protector is also available.

See your Stromberg-Carlson representative for further information.

Distributed by

STROMBERG-CARLSON

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SHALL WE GROUND OR INSULATE EXPOSED GUYS

Concluded from page 21

main live for an extended period of time, at a point not visible to a person who might contact the guy. This applies, also, in locations in which a guy may oscillate or be jerked into contact with live power wires. When adequate grounding may be provided, grounding is generally preferred to the use of strain insulators from the standpoint of both safety and economy.

The objective of protective grounds on electric circuits or equipment, as required by the National Electric Safety Code, is to keep some point in the electric circuit, or equipment, at, or as near as practicable to, the potential of the earth in the vicinity, in order to prevent the flow of dangerous currents through the bodies of persons in case of accidental contact with live conductors.

The ideal condition would be to have a grounding electrode with a resistance to ground so low that the voltage to ground would be held to a small value under all conditions. In many cases, this is not practicable because of either high soil resistivity, or because the power circuit involved is of very low impedance. In such cases, however, a high degree of protection may be obtained if the grounding electrode has a low enough resistance to ground to insure adequate current to operate protective devices and thus remove the hazardous potential.

The importance of low resistance in ground connections cannot be over emphasized. The lower the resistance of the ground, the less will be the potential between the grounded conductor and the earth. In any event, the resistance should be reduced to a point that will cause the faulted circuit to be promptly de-energized. When the secondary distribution circuits of the power system are provided with a ground of 25 ohms resistance or less, the current in case of a fault involving the primary distribution circuit will, in general, prove sufficient to de-energize the primary circuit at the primary.

When it is decided that guys are to be grounded, then a decision must be made as to the type of grounding that will be used. One method generally preferred and frequently used is to ground all guys by bonding them to the neutral of a multi-grounded power conductor. This method of grounding is usually considered adequate for the protection of guys exposed to a power line of any voltage.

Where it is decided to make use of the multi-grounded neutral method of grounding, necessary arrangements and an agreement should be made with the power company. In most cases, it will probably be necessary to have this work performed by the power company. When this is not considered desirable, it may be possible to have the power company instruct the telephone workmen as to the proper method to safely make the connections.

Another method of guy grounding is to connect them to the cable supporting messenger strand. This method is considered adequate when the cable is not exposed to power circuits carrying over 15,000 volts. The cable and messenger strand must be systematically and effectively grounded. This ground may be provided by connecting the strand to the central office ground or a length of buried or underground cable.

Guys may also be grounded to a driven rod or a suitable anchor rod when they are exposed to voltages in excess of 15,000 volts. In this case, a neutral multi-grounded power conductor may also be used. Tests recently made indicate that deep driven, sectional ground rods may be used to advantage for the grounding of all guys.

Needless to state, there is a variety of opinions among communication engineers as to when to insulate and when to ground. We have a report of one case in which all strain insulators on an aerial cable plant were bridged out and troubles immediately showed a considerable decrease. Another well-known engineer, whom we consulted on this subject, insists that we should effectively ground all aerial cable plant. Then, when it comes into accidental contact with power conductors, protective equipment will operate quickly and allow little if any damage. If the plant is not well grounded, or if it is insulated, the power will leak slowly to ground and probably cause serious damage to the telephone plant.

It is interesting to note, also, that many new cable plants constructed during the past few years have grounded guys and from all reports they are giving good service.

Texas Cooperative Incorporates

The Industrial Telephone Cooperative, Inc., LaSalle, Tex., has been issued a charter by the state.

The incorporators, who will serve as directors and manage the affairs of the corporation until its first annual meeting, are J. A. Leissner, J. R. White, Jack Jones, George Schattel and Frank Korenek, all of La Salle, and Frank Venglar and Wilburn Martin of Vanderbilt.

THE Operator's Corner

By MAYME WORKMAN — TRAFFIC EDITOR

EVERYONE has a philosophy of life, whether they are conscious of it, or not. A pattern we follow in our every day living, our work, our social contacts, in everything we do.

Our philosophy governs our life to such an extent that it determines whether we shall be happy, sad, discontented, or otherwise. Our inner feelings are reflected in our outward personality.

Accepting life as we find it, the bad as well as the good, is so helpful in attaining "peace of mind," which makes our life tranquil and satisfying.

Celeste Holm, well-known actress in TV, the theatre, and night clubs seems to have achieved that tranquility of life, free of the tension that plagues so many people, not only in the theatre, but in all walks of life.

In a recent interview she was asked what she considered the most important phase of her beauty care, to which she replied, "Peace of mind." She continued, "I don't even like to use the word 'peace,' it sounds so dull. What I really mean is a sense of ease—in my work and within myself. It's a feeling that comes when you learn to accept things as they are." How true!

"Do you think success has anything to do with it?" she was asked. "I have a little story about that," Celeste replied. "Not long ago I was talking with an actress who was a big star 15 or 20 years ago. She was reminiscing a little ruefully about how miserable she'd been at the peak of her success. She felt the studio wasn't treating her well, that she should have better parts, etc.

" 'The other day I read over one of my old contracts,' this woman told me, 'and you know, there wasn't anything in it about being happy!'

"It's so important, this learning that happiness is never guaranteed with anything," Celeste finished, smiling. "It's something we must create within ourselves."

When Miss Holm was asked what she did to combat the blues we all have occasionally, she said, "First of all, I stay away from everyone. Very few persons are interested in our problems or find us attractive when we are down in the dumps. Then I find something to do with my hands. I defrost the refrigerator or I sew. These tasks always cheer me up, because I like the feeling of seeing something accomplished."

And so you have the philosophy of Celeste Holm, attractive actress, winner of an Oscar and two additional nominations. An actress who never has exhibited the tension that haunts so many talented, ambitious people. She always seems happy, calm and relaxed, due to her achievement — peace of mind.

This inner feeling of contentment is a valuable asset in any walk of life, particularly in the life of a telephone operator, who has many opportunities to "blow her top," when customers are impatient or unfair in their accusations. The unruffled person not only feels better but has a distinct advantage in every situation. The person who displays anger or impatience is likewise at a disadvantage.

Haven't you seen people who just radiate happiness? Of course, you have! We have many of them in our telephone exchanges throughout the nation. It is a pleasure to come in contact with them and a real privilege to work with them. A happy heart is like a ray of sunshine. It warms everything within its radius.

We can all be happy people, if we try. Inner happiness is an achievement which not only benefits us, but everyone with whom we come in contact. Why not try being happy for a whole day despite any problems which may arise? Start out the day by seeing the beautiful things in life—the sunshine, the blue sky, and all of nature's wonders. Resolve to not let anything mar your calm demeanor.

Each year many young girls are inducted into our traffic forces and we oldsters can give them the right slant on the job by spreading happiness in the surroundings in which they will work by being friendly, cheerful, helpful, making them feel comfortable and at ease.

"The White Collar Girl" column, *Chicago Tribune*, by Ruth MacKay, one of my favorites, contained a letter recently on the subject, "My Advice to a Beginning W.C.G.," from "Mary at 50," to "Mary at 18," which every young girl starting in the telephone industry, or any industry, for that matter, might well read and follow. Here's the letter:

"To Mary at 18:

"Follow your mother's advice on clothes and demeanor. And your dad's on savings. It never fails.

"If your mother has been out of the business world for a long time (and we hope she has) you should heed the advice of your school's placement counselor regarding your first position. She's the lady who knows the problems of girls just out of school.

"Don't be afraid to turn down a position, if you think you will be unhappy in the surroundings or not enjoy the work, just because the salary is attractive. You'll find, as years go by, the pay check is a definitely important factor, but not a happy compromise for some things.

"Feet on the ground — after you've landed, dear Mary at 18, place both feet on the ground and try to follow a few simple rules. You'll slip, of course, but don't we all? If so, get right up on your feet again—and go on. Here are the few simple rules:

"(1) *Be courteous* . . . and your courtesy will return a hundredfold. You will soon learn that it takes all kinds of people to make an office, but remember *you have to account for only one.*

"(2) *Be loyal* . . . to the company which pays your salary. Follow its rules and regulations as best you can. *Be loyal* to yourself, and have the courage of your convictions.

"(3) *Keep learning* . . . never pass

more protection for the public . . . at a new low cost to you

Hubbard's new Glo-Guard Guy Protector

● reflects brightly in headlight glare ● easily visible on dimly lighted streets or poorly lighted areas ● readily visible to pedestrians at night ● Cor-ten steel construction assures long life, high strength and light weight at a new low cost ● top quality double dip hot galvanizing assures superior resistance to atmospheric conditions

Protect the public from dangerous projections both day and night with Hubbard's new Glo-Guard Guy Protector, with the added feature of luminous areas that glow in the dark for additional visibility.

This new Hubbard guy protector is available in two lengths, 7 feet (Stock No. 718) and 8 feet (Stock No. 818), with attachment holes and clips designed for universal application to guy wires, rods or clamps. The clips and hole spacing allow the protector to be mounted close to the ground or at any height. Heads of attachment bolts are trapped so they will not turn as the nuts are tightened.

Hubbard Glo-Guard Guy Protectors are available for immediate delivery.

Your Hubbard representative will show you a model of this new Glo-Guard Guy Protector on his next call. If you want information immediately, please contact your nearest distributor or Hubbard and Company, 6301 Butler Street, Pittsburgh 1, Pa.

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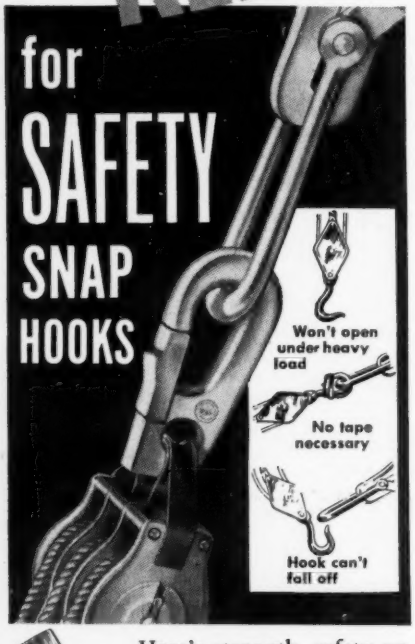
for SAFETY SNAP HOOKS



455 Solid Eye

Here's strength, safety on heavy loads—for blocks, tackles and hoists. Klein Safety Snap Hooks are time savers, too, eliminating the necessity of taping or wiring the throat. Made of drop forged steel—carry a working load of 8,000 pounds with adequate safety factor. Snap on easily with one hand—may be used on any conventional steel block 6 inches or smaller, or on chain hoists or snatch blocks. Four types regularly available. Specify 455-SH-3 Snap for use with 1½-ton hoists . . . No. 455-SP for double chain hoists and for attachment at housing. Klein can also supply safety snap hooks for lighter loads.

455-S Swivel Eye

455-SH Swivel Eye

Foreign Distributor: International Standard Electric Corp., New York

455-SP

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up an opportunity in an office to learn something new. Even if you don't care to continue to do that type of work, your thorough knowledge of it will add to your experience. For your calendar pad, I might add a little prayer memorized years ago to help when the going is rough — which sometimes it is, no matter what the career:

" 'Give me sympathy and sense
And keep my courage high;
Give me grace and confidence,
And please—a twinkle in my eye.'
"Mary at 50."

In summarizing. we have a quest for happiness and suggestions for the experienced and inexperienced workers in the art of telephony.

Traffic Questions

(1) Should the subsequent attempt time always be entered on the ticket?

(2) When word has been left on a call, should the TX operator always reach the calling telephone before making a subsequent attempt and ask, "On your (or 'Mr. Calling party's') call to (called place), shall I try to reach Mr. (called party) now?"

(3) On a collect call, when a mechanical answer is received, if the recorded announcement indicates that a message will be accepted on a collect basis, what action should be taken by the operator?

(4) When a mechanical answer is received on a collect call, if the recorded announcement does not indicate that a message will be accepted on a collect basis, what should the operator tell the calling party?

(5) On a new call, if through supervision is not received, and the distant operator reports "DA," should you say, "Keep ringing?"

Answers are presented on page 75.

Arkansas Association Holds 33rd Annual Meeting

The 33rd annual convention of the Arkansas Telephone Association was held in Hot Springs on Sept. 26 and 27. About 90 per cent of member companies were represented and total registration reached 285.

With John W. Carter of Smackover, association president, presiding, B. Hollon Smith, vice president of Bankers National Life Insurance Co., Montclair, N. J., presented his company's long-term financing program. Bankers now has several loans in Arkansas and others underway.

C. F. Byrns of the Southwest Publishing Co., Fort Smith, Ark., presented a talk on his theory that automation is a friend to all industries.

The North Electric Co. sponsored a general question-and-answer session on carrier equipment in the afternoon of the first day.

Irv Mattick, of Southwestern Bell Telephone Co.'s St. Louis office, demonstrated the transistor and the solar battery. Mr. Mattick's predictions for the future left his listeners with the impression that the telephone industry is on the threshold of so many new developments that, in effect, it is still in its infancy.

Dr. John T. Caldwell, president of the University of Arkansas, spoke to the group on the importance of education. He said the primary purpose of education is the turning out of leaders and the enlightening of man's mind.

Leon Roberts, director of information, United States Independent Telephone Association, spoke on the national organization and its many functions, and especially how, in Washington, it safeguards the interest of all telephone people.

Clyde McFarlin, of Montezuma, Iowa, chairman of the USITA Employment Relations Committee, gave a rundown on the effect of the increase in the minimum hourly wage (beginning Mar. 1, 1956), and the fight the industry is making towards reimbursement for the cost of removal and replacement of communications facilities under the federal-aid highway program.

The second day's afternoon session was conducted by J. D. Brewer, auditor of the Western Arkansas Telephone Co., Russellville, with assistance from Holmes Garrison of the Union Telephone Co., Smackover, and Mr. Hutto of Southwestern Bell. They directed a subscriber billing workshop complete with diagrams, plus the answers to a lot of questions regarding subscriber billing. The Arkansas association reportedly is considering similar "school workshops" for district meetings.

The association awarded its first lifetime membership certificate to Mrs. Algarene Graham, former owner of the Clinton-Shirley exchanges, for her half-century of devotion to the telephone industry.

All of the directors of the association were re-elected. They are: R. L. Bankson of Little Rock; W. L. Bryant of Leachville; T. B. Hollingsworth of Stuttgart; S. A. Lane of Russellville; Carl Moore of Harrison, and John Shaffer of Gentry.

All of the officers also were re-elected. They are: President, John W. Carter of Smackover; first vice president, H. R. Wilbourn Jr. of Conway; second vice president, Mrs. Virginia Hirsch of Mountain Home; secretary-treasurer, J. D. Garrett Jr. of Lewisville, and executive secretary, Lois Kehoe of Little Rock.

ARE YOU WASTING MONEY?

Continued from page 23

(1) A form should be designed to get a definite amount and kind of information from the user. Define its purpose and you will eliminate much of the unnecessary data that appears on many forms. Doing this lowers both printing costs and clerical costs.

(2) A form should make it easy to enter the required information.

(3) A form should make it easy to absorb and use that information.

(4) A form should be reproduced as cheaply as possible consistent with its function.

(5) A form should be designed to help reduce errors.

Some printing companies now have on their staffs at least one office methods and forms specialist whose main job is to advise clients on their forms problems and requirements. The printing industry is broadening its services in other directions as well. Such plans relieve customers of many of the mechanical functions associated with forms purchasing, handling and storage.

One plan works as follows: At the beginning of the year, the client and the printer together plan the number of all forms to be used by the company during the ensuing year on the basis of past use. The printer then prints the forms in large (economy-size) press runs.

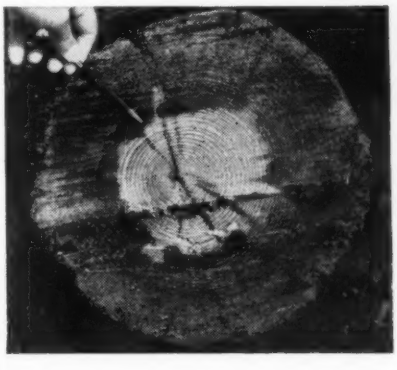
All of the forms are stocked in the printing company's own warehouse, which frees valuable storage space for the purchaser. The printer then ships forms to the customer on a monthly basis throughout the year. Also, each month the customer receives an inventory report showing the precise quantity of the annual allotment remaining in stock. The customer pays monthly or, in other words, pays for the forms as the company receives them and uses them.

By extending the normal services of the printing company, all that remains for the customer is to review his requisitions and requirements. Aside from sheer convenience which frees valuable time for other executive functions, savings are considerable.

A giant annual printing drops costs per unit to the floor. It also makes possible gang runs which utilize an entire printing plate, another economy measure. It also saves the customers a portion of what normally is about 10 per cent of the original purchase price of the forms — the cost of storage and handling.

Bulk shipments cut down tremendously on the use of premium freight

Pressure-Creosoted poles on 23-mile line in service 42 years without a single failure!



The interior of one of the 42-year-old poles. Notice the excellent degree of penetration —how pressure treatment forced the creosote deep into the wood for *thorough* protection against decay and termites through the years.

THIS POWER LINE was installed by the Ohio Edison Company, between Akron and Bedford, Ohio, more than 42 years ago. The pine poles were erected on 125-foot spans, in 40-foot, 45-foot, and 50-foot lengths. Pressure-treated with Creosote, the poles have withstood almost half a century of weather, termites, and decay, without requiring a single replacement.

Recently, because additional pole height was needed, some of the lower level poles had to be replaced by longer ones. They were sawed off just above the ground line, the most vulnerable point of the pole. Inspectors were amazed to find the poles completely sound – good for many, many more years of service. Especially significant is the fact that the soil was very moist most of the time, and in some cases there had been water in the bottom of the pole holes. Yet, the poles were in perfect condition.

• • •

To get this kind of quality and long life—30 years or more—always insist on clean poles, pressure-treated with Creosote, the proven preservative. For more information, write to Koppers Company, Inc., Tar Products Division, Pittsburgh 19, Pennsylvania.

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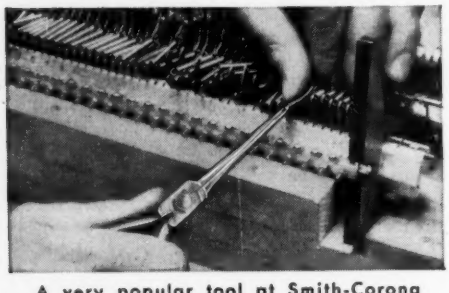
have given us convincing evidence of
HIGH QUALITY"
say production engineers
at Smith-Corona Inc.

"In manufacturing a quality typewriter we need durability, dependability and accuracy in our hand tools, and that is what we get from Utica," they add.

A precut stepping dog carrier spring is trimmed to size by UTICA® No. 65 nippers.



A very popular tool at Smith-Corona is the UTICA® No. 777 needle nose pliers.

Bell crank link is snapped to key lever by UTICA® No. B224 duck bill pliers.

Smith-Corona's new Eighty-Eight secretarial office typewriter. UTICA TOOLS® have an essential part in producing this fine instrument.

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carriers, used by many companies purchasing forms in small lots. And it completely eliminates the purchasing agent's recurrent nightmare — emergency orders.

There are, in addition, a number of other basic questions that should be asked of a form design before it is sent to the printer. Here they are:

(1) Is the form designed to be cut from standard size sheets with a minimum of waste or no waste at all?

(2) Is every form numbered (form code number) and is all recurring information printed to eliminate unnecessary clerical entry time?

(3) Does the form have clear routing instructions?

(4) Is the specified paper quality consistent with the number of handlings and the length of time the form will be stored?

(5) Is the form designed to eliminate unproductive motions, to fully utilize tabular stops on the typewriter, for instance, or to match the sequence of material on the source document?

(6) Are related vertical columns clearly segregated?

(7) Is related information in adjoining spaces or columns?

(8) Does the form provide larger spaces for handwritten data than for typewritten data? Are all blank spaces large enough to contain the information requested?

(9) Are all instructions for use of the form at the *top* of the form and not at the bottom or on the reverse side where they are read too late if at all?

(10) Are related vertical columns clearly segregated?

(11) Are captions on the form overemphasized? Remember, it is the filled-in material that is important. Don't permit instruction to become distraction.

(12) Is the form designed so that the information shown on it when completed will be in the same order in which that information will be used by the next recipient?

(13) If more than one employe fills out the form, are all entries made by the same person grouped in the same position?

(14) Is every entry essential? Removing a single entry on a form will save clerical time on as many entries as forms are used in a year. And 3,000 to 10,000 entries add up to a great deal of wasted labor expense.

(15) Are the number of different type faces used on a single form kept to a minimum, with a shift to another face or a bolder type only where emphasis is necessary?

(16) Would a colored stock make it easier for the user to identify the form or the number of carbons required?

(17) Is serial numbering of a form specified only when it is absolutely necessary? Unless the printer has a special numbering attachment, serial numbering requires two press runs.

(18) If the material is to be filed vertically, is identifying material at the top of the form?

These questions cover some of the most prevalent mistakes in forms design. Whenever these mistakes show up in a poorly designed form, your company pays in a number of ways: through higher than necessary printing costs; through consistent errors either in entries or in "reading-off" the form; and through wasted clerical man-hours.

A well-drafted form, on the other hand, is a product of close collaboration between the purchasing company and a reliable printing firm. Unlike most industries, printing is almost entirely a made-to-order operation. Its products are fitted to your specifications and, like a suit, the product will not not fit unless the specifications are accurate and complete.

All of the techniques mentioned here are based on one major premise: that the key to printed forms cost reduction lies in designing, printing, and stocking printed forms on a thoroughly planned basis to reduce clerical costs and errors—the biggest single cost in your office.

THE OPEN HOUSE

Continued from page 26

entirely appropriate to serve light refreshments. In most cases we serve punch and fancy cookies, or coffee and doughnuts. It is during this period that the real opportunity for fellowship presents itself. Here you get to know the subscriber, and he gets to know you. It also affords another opportunity for a bit of public relations. Make arrangements for some church group to handle the refreshments. It will probably be cheaper for your company than to secure a caterer, and the ladies of the church will welcome the opportunity to have a part in your open house.

Perhaps some of you are wondering just how many you need to prepare for, and I will be frank to tell you that this is the $64 question. In our own case we have planned for 25 per cent of the number of subscribers, but asked those in charge of the refreshments to be ready for more. The first day you will get a fairly accurate estimate of how many you may expect the second day. It has been our experience that the attendance will run between 20-25 per cent of the number of subscribers in the town or city holding the open house.

The Open House

Now that we have discussed the details of planning, let us consider the actual operation of open house. We select several girls who are adept at meeting people to serve as hostesses or

(Please turn to page 75)

receptionists. It is their duty to welcome the guests and to assemble a party for the guides. We like to limit a group to not more than 10 or 12. Receptionists wear badges. They will introduce the guide to the assembled group, and he will make the introductory remarks including a welcome to the open house.

Either the guide or the manager will outline the "tour" and we like to use a little time to show the guests a telephone and a directory—telling them that these items ordinarily come to their minds when they think of telephone service, for they are the items which are found in homes or places of businesses. Most people do not realize that back of that instrument is a great deal of equipment and many people. On this "tour" they are going to have the opportunity to look behind the scenes and see their telephone company in action.

We feel that remarks of this kind help to impress our guests, and give them a fuller appreciation of what is required to furnish telephone service.

It has been our practice to visit the toll switchboard as the last stop. Most of our operators lounges are ideal places to serve refreshments, and the tour ends at this point. Now let me enumerate a few things which might be classed as "do's and dont's."

First of all, make your guests feel welcome and at home. Make them feel that you are glad they came to visit you. They should be treated as you would treat guests in your home.

Answer all of their questions if you

Answers to Questions On Page 68

(1) Yes.

(2) Yes.

(3) The operator should explain the situation to the calling party if necessary and if he wishes to be connected, the operator will proceed in the usual way for a collect call on which charges are accepted.

(4) Tell the calling party that you are unable to secure acceptance of the charge, explaining that a mechanical answer was received from the called telephone and using the wording of the recorded announcement as far as this appears desirable. If the calling party says that he will pay for the call, proceed as on a new paid call; otherwise, proceed as directed.

(5) Yes.

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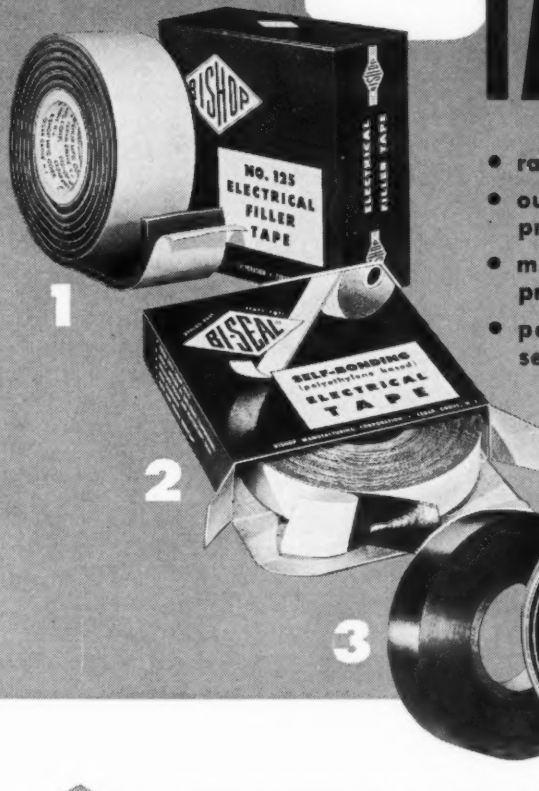

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Fills voids in splice bundle in a matter of seconds . . . provides foundation for subsequent tape layers . . . a ⅛-inch thick insulating compound in tape form that can be molded by hand to comfirm to irregular shapes and contours.

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are able to do so. If not, either get the answer for them at the time, or if that is not possible, do so at the earliest possible date.

Accompany all guests to the door as they leave, just as you would if they were leaving your home. Invite them to return and visit you again.

And now for some "don'ts."

Dn't try to explain how the equipment works. The average person will be impressed with the amount of it, is not interested in how it works, and would not understand if he were told. We think it is only important to tell what a certain piece of equipment does, not how it does it.

Don't let your group get separated. If they wander off by themselves, you can soon get into a state of utter confusion.

Don't fail to have your building well lighted. Some employ the use of spotlights on the outside of the building. It adds a little glamour and showmanship and that is essential in conducting a successful open house.

Be sure that nothing is done to leave the impression that money is being foolishly expended.

After the Open House

Both during the open house, and afterwards, you have the opportunity for some fine publicity. The story of the open house makes an excellent newspaper story, particularly if you have taken pictures during the affair. We think it is a "must" to arrange for pictures showing the folks in your exchange building. These pictures can be used not only in connection with your publicity, but also in your company magazine. I also suggest that you should run an advertisement after the open house thanking the public for their response to your program.

We have also found it advantageous to make an appraisal of our efforts at the conclusion of the open house. At this time we review the entire program and evaluate it. We decide what we did that could have been done better, or what was done that should not have been done. We also determine what we failed to do. Such an approach will make for a better and smoother operation of future open houses.

Now that open house is over, what can we expect to have gained? First of all, we have created a better understanding on the part of the public of our business and its problems and that is one of the prime objectives of any sound public relations program. Open houses serve as a means of getting acquainted with our customers, and they with us. I am sure that a properly "staged" open house will convince our customers that we are a progressive, well managed and efficiently operated company.

I believe that the open house definitely improves our employe relations. When they see the guests impressed with our operations, they are more proud of the fact that they are a part of a service which is so vital to the welfare of our community and nation. We have also found that the open house program is an important factor in recruiting.

I can recall an experience at one of our more recent open houses. A man and his daughter made the "tour," left the building, and later returned and made inquiry as to where his daughter might make application for employment. "After seeing the exchange and observing working conditions, my daughter has decided that she would like to become a telephone operator," he told me. I can assure you that this was not an isolated case, for we have had many applications for employment as a direct result of a visit to the telephone office.

In conclusion, I think telephone people must recognize some facts. We in the telephone business have certain responsibilities and also wonderful opportunities. America has become great, it has prospered and outstripped all other nations. The free enterprise system, a system which allows us to conduct our businesses as individuals and as Independents, has played a large part in this development. Today, there are many who do not recognize this fact, and would gladly substitute for it some other system.

The only way our nation can continue to be great, and accomplish even more in the future, is to preserve the American way of life. We as telephone people can play an important part by telling our story, and the story of a free and Independent business—and it is our duty to do so.

The open house program is one of the quickest and most effective means of "selling" our business to the public. I urge you to employ this most effective tool in promoting good public relations.

Owning America

"Widespread ownership of American industry is to be encouraged. The success of new risk-taking enterprise is peculiarly dependent on equity financing. A healthy stock market is essential if the role of equity financing in corporate finance is to flourish."—GEORGE M. HUMPHREY, *Secretary of the Treasury.*

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Because it's Easy to Use, Fast The "Mighty-Midget" replaces heavy, complicated equipment. It is simple in design, simple to operate. Handle can be used either as a lever or a high-speed crank. Mere 28-lb pressure on handle pulls 500 lb.

Ask your distributor for more information on the "Mighty-Midget" or write for Bulletin T-MP.

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Busy exchanges throughout the world are using Calculagraphs because they produce quick, accurate, automatic toll time records. Accurate to-the-second, printed records eliminate switchboard detail work and assure you of collection of all revenue due on every call. CALCULAGRAPHS are precision instruments with high visibility clock dials, easy to operate — featuring smooth silent lever action.

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For greater uniformity... greater rigidity!

Now... Chance Pike Poles are made by bonding together carefully selected Douglas fir boards. Laminated Pike Poles have many advantages over the old, single board pike pole. They're more rigid. They're more uniform. Each board reinforces the other.

SAFETY PIKE — *Point can be reversed as shown in circle, for safety in handling and transporting between jobs.*

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Chance *laminated* Pike Poles are available with tough Maplac plastic coating. Splintering of the wood is eliminated. Lost-time hand injuries, caused by splinters, are avoided.

IT PAYS TO BUY HIGH QUALITY IN A PIKE POLE. Only on a Chance pike pole will you find the steel reinforced butt which protects the end of the pike. And only *laminated* Chance pike poles are available with Maplac protection.

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COURTS and COMMISSIONS

New Jersey Ruling Given On Utility Rate Counsel

New Jersey's attorney general has the right under the law to designate rate counsel to represent the public interest at proceedings involving any utility company application for a rate increase, it was ruled on Nov. 18 in Trenton by Superior Court Judge Ralph Smalley.

The opinion was regarded as a victory for the state in its contention that a utility is obliged to compensate rate counsel not only for services in connection with proceedings before the New Jersey Public Utilities Commission, but also for work on appeals from commission decisions.

Judge Smalley ruled in a suit brought by State Treasurer Archibald S. Alexander against the New Jersey Power & Light Co. for a declaratory judgment after the company contested the payment of fees in the amount of $3,683 to State Senator Wesley L. Lance, Hunterdon County Republican, and Joseph Harrison, rate counsel. The company argued it was obliged to pay the state treasurer only the amount due rate counsel for services in the original commission proceedings, not the appeal.

Under New Jersey law, a utility company applying for a rate increase must pay the compensation of rate counsel up to a maximum tenth of 1 per cent of its revenues in the preceding year.

New Jersey Power & Light's application for a rate increase was denied in 1953, and the denial was affirmed on appeal.

N. C. Commission Approves Rate Schedule, Sale

Purchase of the Robbinsville (N. C.) Telephone Co. by the Western Carolina Telephone Co., Weaverville, was approved on Nov. 19 by the North Carolina Utilities Commission, which also approved a schedule of rates for the new owners to charge Robbinsville customers (TELEPHONY, Dec. 24, 1954, p. 74).

Western Carolina operates exchanges in McDowell, Mitchell, Yancey, Swain, Jackson, Graham, Macon, Clay, Madison, Cherokee and Buncombe counties. It told the commission it plans to improve service in the Robbinsville area and in Graham County, with plans calling for a new central office and installation of automatic equipment.

The new rates approved by the commission are to become effective when the dial service is furnished.

For one-party residence service, the rates will be $4.75; two-party residence, $4.00; four-party, $3.50, and rural residence, $3.50.

For one-party business the rate will be $7.25; two-party, $6.25; four-party $5.50, and rural business, $5.50.

Asks Rate Raises to Cover Toll-Free Service in N. C.

United Telephone Co. of the Carolinas, Southern Pines, asked the North Carolina Utilities Commission on Nov. 21 for permission to provide extended scope, toll-free service between Southern Pines and Pinehurst, and between Southern Pines and Aberdeen, and to raise local exchange rates to make up for the toll revenue it would lose.

It said residents of the area favor the change, which it would put into effect within the coming year.

The Southern Pines and Pinehurst exchanges are operated by United Telephone. Aberdeen is served by the Sandhill Telephone Co., which presumably will ask for a similar rate adjustment later to cover its participation in the plan.

To compensate for loss of toll revenues, United would raise rates at Southern Pines and Pinehurst as follows:

Business service: up $2.25 for one-party service; up $1.75 for two-party; up $1.50 for four-party, and up $1.50 for rural multi-party service. Residence: up $1.00 for one-party service; up 75 cents for two-party; up 50 cents for four-party, and up 50 cents for rural multi-party service.

Minnesota Commission Approves 5.75% Return

A rate of return of 5.75 per cent on the fair value of the plant of Minnesota Telephone Co., Minneapolis, was approved on Nov. 23 by the Minnesota Railroad & Warehouse Commission.

Under the new schedule of rates, the commission estimated net revenues at $795,587 and net income at $148,148. The fair value of plant—$2,574,480—was arrived at by adding an amount for material and supplies plus an amount for working capital to the net plant investment.

Different rate schedules were ap-

proved for exchanges with various numbers of stations as follows: zero to 250; 251 to 500; 501 to 750, etc.

The Minnesota company served 12,640 subscribers as of July 31, 1955, of which 1,005 were switched. It owns and operates 21 exchanges.

Kansas Company Rate Raise Applies at Four Exchanges

Rate increases for four exchanges of the United Telephone Association, Inc., Dodge City, were authorized on Nov. 22 by the Kansas Corporation Commission.

The commission noted that the company recently has completed rebuilding all of the rural lines served by the four exchanges, and has converted its Copeland, Ingalls and Montezuma exchanges to automatic operation. New rates are:

One-party business	$7.00
One-party residence	4.25
Two-party residence	3.50
Four-party residence	3.00
Ten-party rural	4.25

Authorizes Transfer of Virginia Territories

The Virginia Corporation Commission on Nov. 22 authorized the Inter-Mountain Telephone Co., Bristol, Tenn., to take over additional territory in Grayson County presently being served by the Fallville Telephone Co.

Inter-Mountain, under the order, will provide service to a part of the town of Galax and the towns of Fries and Independence, in addition to certain other territory in the county.

In a companion action, the commission amended the certificate of Roscoe L. Burris, trading as Fallville Telephone Co., to remove a part of the territory previously allotted this company and now being added to Inter-Mountain's certificated area.

Wisconsin Independent Gains Rate Increases

A rate increase for the Rhinelander Telephone Co. was authorized on Nov. 8 by the Wisconsin Public Service Commission, it was announced by Paul Parsons, general manager (TELEPHONY, Sept. 17, p. 39).

The increase for the 4,500 subscribers will bring in additional revenues of $30,559 annually, $7,602 less than the application proposed. The commission was asked to increase rates to bring in $38,161 to provide additional revenue to take care of wage increases.

The application, filed with the commission in August, requested that net rates should be increased from $7.00 to

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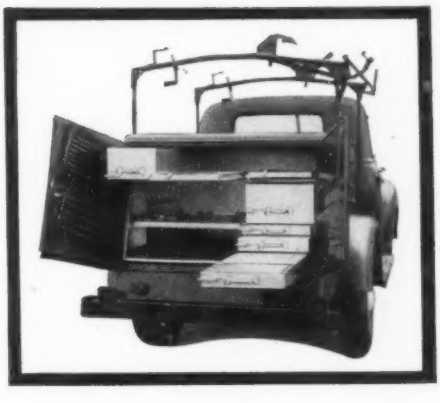

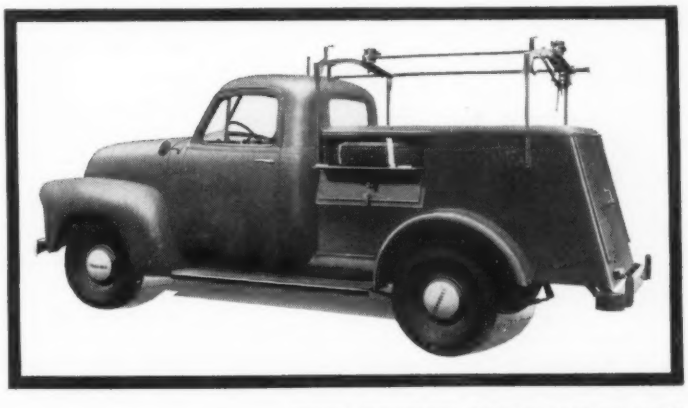

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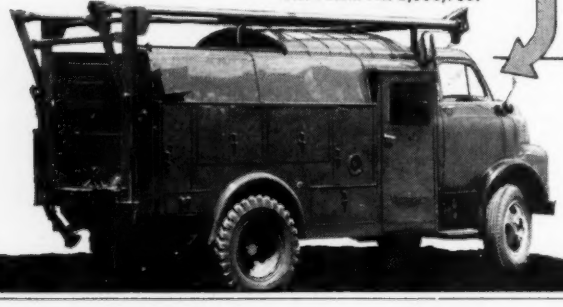
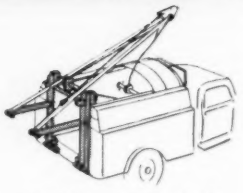
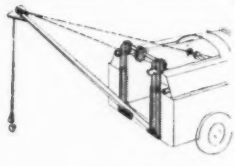




Derrick raised by simply engaging the winch.

Vertical position—winch rotation reversed.



Derrick is locked in operating position.

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$8.75 for one-party business service; $5.75 to $6.75 for two-party business; $4.75 to $5.50 for one-party residence; $3.75 to $4.50 for two-party residence; $3.00 to $3.50 for four-party residence; $5.00 to $5.50 for rural business multi-party, and $3.15 to $3.75 for rural residence multi-party service.

The commission's approved rates are as follows: Business: one-party, $9.00 and two-party, $7.00; residence—one-party, $5.30; two-party, $4.15, and four-party, $3.35. Multi-party service—business, $5.35, and residence, $3.50.

Missouri Independent Offers Remainder of Stock Issue

The Fidelity Telephone Co., Sullivan, Mo., is offering to the public the remaining shares of the total number of 2,000 shares of 5½ per cent cumulative preferred stock authorized by the Missouri Public Service Commission. There are approximately 1,550 shares presently outstanding, so the remaining 450 shares are being issued.

The proceeds of the sale of these shares together with additional funds will be used to complete payment of the modernization and expansion program started a little over a year ago.

Approves 6.25% Return For Oregon Company

Approval of new rates for the Deschutes Telephone Co., Maupin, to provide the company with a 6.25 per cent return, was granted on Nov. 21 by Oregon Public Utilities Commissioner Charles H. Heltzel. New rates effective Dec. 1, will produce an estimated $2,631 additional gross revenue.

The commissioner stated that the Deschutes company is converting to automatic operation and has borrowed $30,000 at 6 per cent interest to complete the conversion.

The commissioner also observed that the company's adjusted net fixed capital for rate-making purposes as of July 31, 1955 is $46,037.42.

Oklahoma Independent Asks Increase in Rates

A hearing on an application of the Oklahoma Automatic Telephone Co. Kiowa, for an increase in rates at Savanna was held before the Oklahoma Corporation Commission recently in Oklahoma City.

The proposed new rates would become effective when the system changes over to dial telephones. No date for the change-over has been set.

Proposed rates include: one-party business, $7.50; two-party business

$6.25; one-party residence, $4.40; two-party residence, $3.50; multi-party rural residence $4.00, rural business $5.25.

SW States Asks Approval of Stock Issue in Arkansas

Southwestern States Telephone Co., Brownwood, Tex., on Nov. 22 placed before the Arkansas Public Service Commission an application to issue an additional 100,000 shares of its $1.00 par value common stock.

The company said it plans to sell the stock to a group of underwriters reportedly for $18 a share.

A total construction budget of $4,065,000 was mentioned by Southwestern States, with one million dollars earmarked for plant extensions and improvements in Arkansas. The company operates 26 exchanges in Arkansas.

Missouri Company Secures Purchase and Financing OK

The Missouri Public Service Commission on Nov. 16 granted the Northeast Missouri Rural Telephone Co., Greentop, permission to:

Purchase from Myers Telephone Co. the exchanges at Green City, Green Castle and Pollock and modernize them (TELEPHONY, Sept. 3, p. 37).

Finance the program by selling 1,500 shares of additional common stock, $10 a share par and 1,500 additional shares of $40 preferred stock and by borrowing $505,000 from the Rural Electrification Administration.

Apply to Mo. Commission To Issue Stock, Make Sale

A. B. Beck, et al, incorporators of the Stotts City Telephone Co., applied on Nov. 18 for permission from the Missouri Public Service Commission to issue 500 shares of no par common stock.

Filed with the commission on the same date was the joint application of Orpheus A. Hutts to sell, and Stotts City Telephone Co., a corporation, to purchase the Stotts City company.

Recommend Sale to SW Bell Of Four Exchanges

Annie N. Huntting, Federal Communications Commission examiner, on Nov. 14 recommended that Southwestern Bell Telephone Co. be authorized to buy out these Independent telephone exchanges:

Leroy (Tex.) Telephone Co.; Westminster (Tex.) Telephone Co.; Mustang (Okla.) Telephone Co.; Mijo Co-

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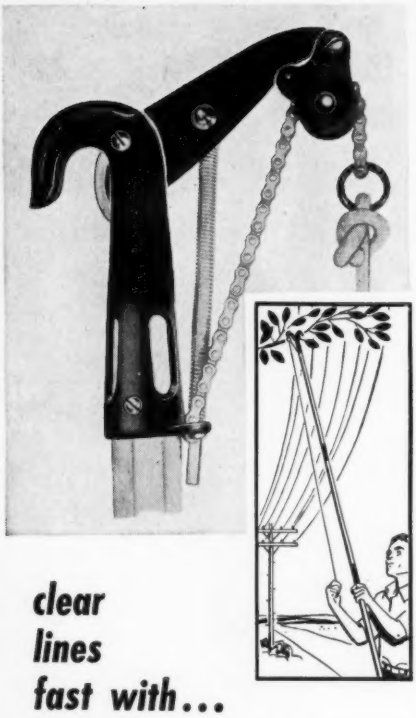

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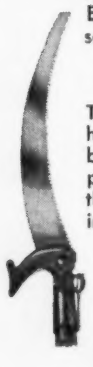

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United of Indiana Asks To Sell Stock, Issue Bonds

The United Telephone Co. of Indiana, Inc., Warsaw, on Nov. 10 petitioned the Indiana Public Service Commission for authority to issue $750,000 worth of bonds and to sell 12,000 shares of $50 par value common stock.

The company plans to use the money to improve its properties and pay off debts.

N. Y. Independent Asks Permission to Issue Stock

Highland Telephone Co., Monroe, on December 2 was to have had a hearing before the New York Public Service Commission for authority to issue 2,000 shares of 4½ per cent preferred stock, 2,500 shares of no par common stock and for approval of an amendment of its certificate of incorporation.

Gets Financing, Rate Pleas From Illinois Companies

The Illinois Commerce Commission recently was to have heard the following applications by Independents:

On Nov. 28, Middle States Telephone Co. of Illinois, La Crosse, Wis., for authority to issue second preferred stock and common stock into which second preferred stock is convertible.

On Nov. 29, Odin Telephone Exchange Co., Inc., for approval of an increase in rates.

Pennsylvania Company Sells Stock and Bond Issue

Commonwealth Telephone Co., Dallas, Pa., sold 1 million dollars worth of bonds and $700,000 of preferred stock to institutional investors, it was reported on Nov. 23. Eastman, Dillon & Co. were agents in the transaction.

Proceeds from the securities will be used for expansion and modernization. The bonds carry 3⅞ per cent interest and are due in 1980. The preferred stock pays 5 per cent.

Penn. Independent to Raise Funds for Expansion

Meadville, Pa., Telephone Co. is to have an additional 2 million dollars for expansion. Shareholders have approved increasing the capital stock and an increase of indebtedness from 3 to 4 million dollars.

Meadville Telephone, which serves Crawford County, and also an area of Mercer County, plans to modernize switchboards and to make other improvements.

Baby Dies in Cal. While Party Liners Deny Telephone

The sheriff's office in Sacramento, Cal., on Nov. 22 blamed the death of an 18-month-old baby on two telephone users who refused to get off a party line so his mother could call for help.

A local woman said she left her infant son in the bathtub with his 2½-year-old brother while she went to the living room to take care of another child.

She heard the baby scream. Running to the bathroom, she found him lying in the tub with the hot water running on him.

She ran to a neighbor's to telephone the doctor. Two women were talking on the party line. When she told them her baby was badly hurt, one woman hung up but the other refused to get off the line.

A man subsequently came on the line and began arguing with her, she said.

Finally, the distressed mother gave up and ran to another neighbor's to telephone. She said the delay was at least 20 minutes.

The baby was dead when an ambulance arrived.

Deputies were trying to learn the identities of the man and woman on the line.

Chesapeake & Potomac To Make Name Change

Chesapeake & Potomac Telephone Co. of Baltimore City has announced that it will change its name to Chesapeake & Potomac Telephone Co. of Maryland, effective Jan. 3.

The company said it is believed the new name more accurately describes the area covered by the company's operations.

Pakistan Adds Fifth Link to International Connections

Karachi, Pakistan, recently added a fifth link to its international direct connections when it inaugurated a radio-telephone service with Bahrein.

Karachi already had direct radiotelephone service with Tehran, Cairo, Bern, and London.

Ky. Company Incorporates

The Harold Telephone Co., Inc. was incorporated in Harold, Ky., it was reported recently. Incorporators were Paul R. and Elaine Gearheart of Harold, and Dan Jack Combs of Pikeville.

ABC OF THE TELEPHONE

Concluded from page 32

where additional public telephones would be a good investment.

All of these new articles in the series will concentrate on explaining the practical ways to do these fundamental jobs necessary to provide good telephone service. It is well to keep in mind, too, that many other equally important topics have been discussed in previous "ABC of the Telephone" articles and are available for training and reference purposes in handy reprint editions.

As mentioned previously, the special service field offers many opportunities for increasing the revenue of the telephone company. Actually, there is nothing unusually difficult about providing lines to meet the customer's special service requirements. Special line equipment is not required unless the line is extended beyond the range over which the special customer or company equipment will operate.

Thus, the telephone company will do well to survey its area to determine the potential use of special service lines. Here are typical lines which may be included in the survey:

(1) Private lines.
(2) Tie lines between customer switchboards.
(3) Radio dispatch terminals.
(4) Teletypewriter service.
(5) Remote control circuits.
(6) Long distance terminals.

Active promotion of these services is suggested because the telephone company is in the best position to provide all the communication facilities required by the community. In developing this kind of business the biggest job at first is selling the service. Equipment manufacturers will be able to provide any additional information or apparatus that may be required to do the job.

Thus, the changing pattern of the telephone industry offers many opportunities for the Independent company. How much the individual company benefits from these opportunities depends to a large extent on the aggressiveness and initiative displayed in meeting the challenge.

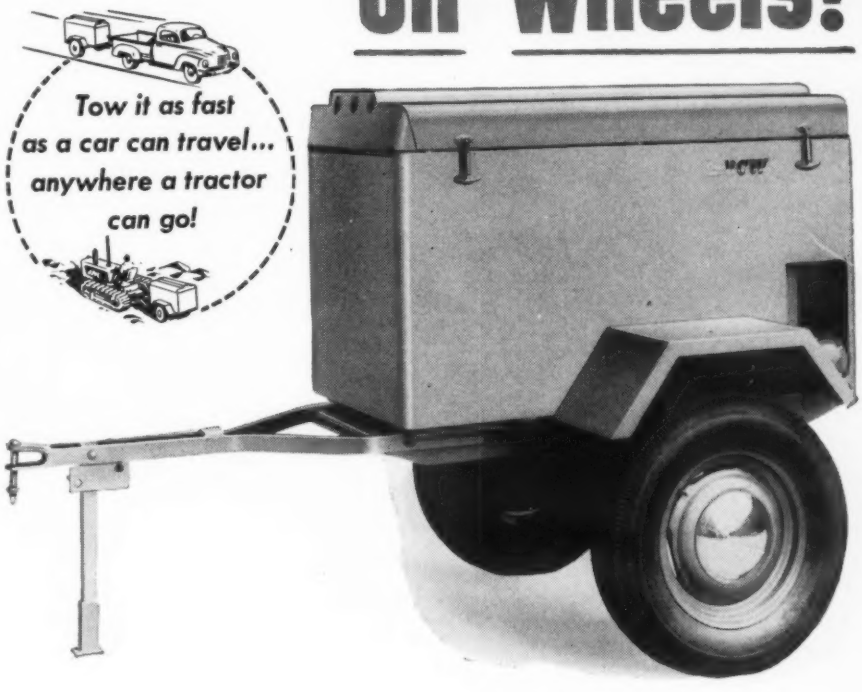
RINGING GENERATOR

Concluded from page 56

power and as free from maintenance difficulties as possible.

Necessary action must be taken, however, to furnish some extra capacity for ring-down trunks, toll lines, PBX, etc., when ringing current is supplied to this type of equipment.

NEW Powerhouse on wheels!



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SOME OBSERVATIONS ON FAIR RATES

Continued from page 62

penses (Item 2 above), one would at first presume that there could be no question here. However, this is not the case, since *depreciation* is classed as an expense and, if it is computed on the basis of original cost, then the resultant is not the current cost of the use of the property.

Nor does the system set up for depreciation actually accomplish what was intended.

An illustrative example follows:

EXAMPLE

Assume: A telephone system with 100 poles.
Each completely equipped pole originally cost $40.
The poles have a life of 20 years.
For simplicity, assume all poles live the 20 years.

CRITERION

For the *depreciation allowance* to equal the *true depreciation expense* it should be a sufficient number of dollars to be able at current prices to pay for 5% of the original number of poles, i.e., 5 poles.

Year	Depreciation allowance under the original cost basis is	and if the purchasing power of the dollar is	the annual depreciation allowance in dollars actually charged to each year's operations is able to pay for this number of poles	whereas the number of dollars which *properly should be charged* to the year's operations should be able to pay for this number of poles	thus the excess or deficiency of the annual depreciation allowance in terms of an equivalent number of poles is
1	$200	100	5	5	0
2	200	160	8	5	3
3	200	200	10	5	5
4	200	160	8	5	3
5	200	100	5	5	0
6	200	100	5	5	0
7	200	80	4	5	—1
8	200	60	3	5	—2
9	200	60	3	5	—2
10	200	50	2½	5	—2½
11	200	50	2½	5	—2½
12	200	50	2½	5	—2½
13	200	50	2½	5	—2½
14	200	50	2½	5	—2½
15	200	50	2½	5	—2½
16	200	40	2	5	—3
17	200	40	2	5	—3
18	200	40	2	5	—3
19	200	40	2	5	—3
20	200	40	2	5	—3

Total economic consumption charged in terms of poles: 76 should have been 100

Under the assumed conditions the result is an aggregate under-allowance for depreciation over the life of the poles in relation to true depreciation expense incurred equivalent to— 24 poles

This example shows that unless depreciation is computed on a current basis, it falls short of stating the true cost of giving service.

There is a further penalty associated with the understatement of current depreciation in times of inflation insofar as the owner is concerned, and this is due to the fact that federal income taxes are levied against that part of revenue, which is retained as profit due to understatement of depreciation which is a deductible cost item.

The most practical and fair method by which this inequity can be corrected is to adjust the depreciable dollars remaining in service to current dollars.

In this way, the annual consumption of the property used in public service will be actually and factually paid for by the current users of service.

In converting original cost to current or fair value one has the choice of:

(1) Simply adjusting remaining dollars to current dollars.

(2) Appraising the properties on the basis of reconstruction cost new, less observed depreciation.

It would seem that the latter would have certain advantages which include:

(1) Verification of the existence of the property and verifying that it is in public service.

(2) Establishing a level or state of depreciation based on fact.

There is a further need for establishing fair value of the capital structures and this has to do with the determination of the owners profit or net return.

Certainly, a rate of return based on original cost, less depreciation, even if the latter is brought into realistic proportions is still not adequate for the reason that such a view ignores the very basis on which the whole matter rests and, again, that is inflation.

To conclude that a return based on depreciated original cost is fair, would in effect state that simply because a plumber, or other tradesman, had gone into business 25 years ago, he is not entitled to earn the same kind of dollars as a man who went into the same business five years ago.

Today, as always, everyone is looking at earnings in the light of current purchasing power of dollars. This is reflected in wages, farm prices and, in fact, under some wage contracts, is a basis for adjusting pay for work.

It cannot be logically reasoned that the dollars generated, or earned, in the telephone business differ in any way from the dollars earned in any other business or endeavor. On the other hand, it seems reasonable that a business should not only generate enough revenue to pay expenses of operation and a return *to pay for the use of money*, but also should return something above the bare cost of the business in the form of a reasonable surplus.

It may be argued that the net return after expenses is profit, but is it really? Is it not largely payment for the *use of money* and in the case of the telephone business, the cost of money is not greatly different than in any other. In fact, if we are only concerned with obtaining a net return to compensate for the use of money, then we can reason that if this philosophy were applied to every enterprise, we would soon all revert into *money lenders* instead of *money users* or *money converters*.

There is a generally accepted fact about money or wealth and its use—it must earn its way and, *in addition*, produce added wealth to—

(1) Compensate those who apply the wealth and assume the risk of loss.

(2) Provide products and an ever-increasing supply of goods or services so as to improve the living base.

(3) Provide a surplus to cover emergencies and casualties.

Every business, in fact each individual, needs some surplus. Most businesses and individuals have a surplus in some form or other.

In the telephone business, the present rates restrict the accumulation of any reasonable surplus after the cost of giving service and payment for the use of money is considered.

The continuing demand for telephone

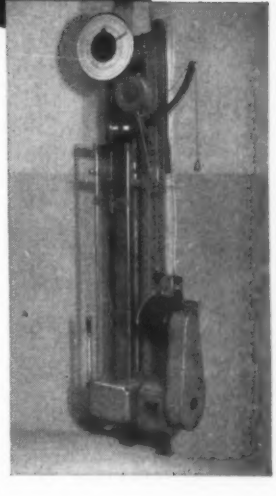
ADHESION TESTS SHOW THE CONDUCTOR BREAKS BEFORE LOWELL INSULATION SLIPS

No. 2 in a series of test results on LOWELL TELEPHONE DROP WIRE. "P Clamp" adhesion test.

The greatest strain on drop wire takes place at the "P Clamp" where the wire is attached to pole or house. The weight of ice and the whipping action of the wind develop extra strain at this point so that the best possible bond is essential, between the insulation and the conductor wire, to insure dependable service and long life.

To develop the strongest possible adhesion, all Lowell wires are brass flashed and special formulas have been evolved for insulation compounds. Lowell jacket compounds also have excellent resistance to abrasion and the ability to withstand the action of the elements under varying atmospheric conditions.

As a constant check, tensile tests are made at the Lowell Laboratories where the conductors are stretched to their breaking point before any slippage of the insulation or jackets takes place. These rigid laboratory tests are your assurance that Lowell Drop Wires will stand up under the most severe conditions and give dependable service without breakdown at this most critical point where the grip of the "P Clamp" must support the entire weight of the span. Year marker threads and manufacturer's identification permit user to keep accurate records of performance and long life in service.

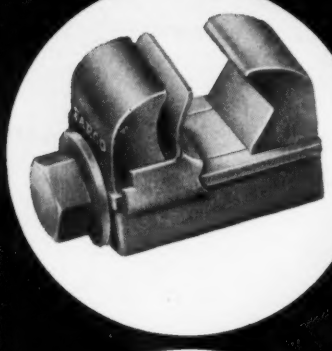


Lowell Drop Wires are continually tested for adhesion of the insulation to the conductor. The conductor must break before the adhesion bond between the insulation and conductor is severed.

Write for Lowell Insulated Wire Catalog

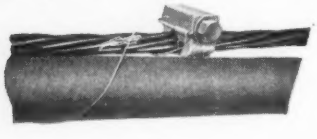
"fine wires only"

LOWELL INSULATED WIRE DIVISION
OF The Overlakes Corporation
171 LINCOLN STREET ··· LOWELL, MASSACHUSETTS



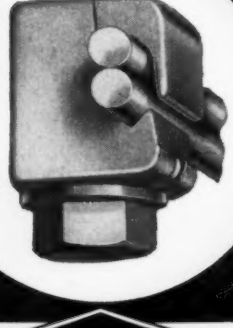
FARGO
LASHING WIRE CLAMP

Fargo's "B-3" takes any size lashing wire and any size messenger up to 25M (½"). Made of malleable iron with Tin-Zinc alloy plating. Uses the "one-piece", "vise-type" design for ease of installation and low wrench torque with high compression. A "V" groove centers the messenger in the clamp . . . a shoulder on the stainless steel pressure bar positions the lashing wire.



FARGO "5000" CONNECTORS

Fargo "vise-type", "one-piece" connectors are an ideal, easy to use unit for bridging connections. Available in sizes from No. 8 to 1,000 MCM.



FARGO

Manufactured by
FARGO MFG. COMPANY, INC.
Poughkeepsie, N. Y.

service is expressed quite forcibly by the unfilled demand for both initial and better service which exists generally.

The only way this demand can be met is by expansion, which means investing more capital in the business.

As stated before, little of this is being produced within the business because the present rates do not produce a surplus.

Where does it come from? It can only come from the surplus generated by the earnings in *other businesses.*

This is especially significant when one considers the fact that these other endeavors are also producing the surplus for their own expansion, which we know is relative to and comparable with, at least in degree, the telephone industry.

Thus, one can only conclude that the present rates are inadequate to produce a *fair return* when measured by relation to what is produced by other businesses.

The remedy appears to lie in the basing of service and depreciation rates upon a *fair rate base.*

Certainly original cost less depreciation does not seem fair and an adjustment of original cost to fair value appears equitable and necessary.

Illinois Bell Kit Develops Better Use of Telephone

A kit of telephone equipment named "telezonia" has been helping develop better telephone habits and skills among children in the third through the sixth grades of Chicago schools for the last five years, it was reported on Nov. 17.

The Illinois Bell Telephone Co., in cooperation with the board of education, has developed the program in 720 elementary schools, reaching about 50,000 pupils in Chicago last year. The package consists of a compact kit. It can be easily set up in a classroom within minutes.

Included are a short feature film in color on how to use a telephone, two practice telephones of the standard type, booklets for children's use, and a teacher's manual.

Pupils are taught through classroom practice how to apply the principles they have learned from the feature film. Conversations are carried on over the practice telephones. Pupils take turns in making and receiving calls, performing each step from looking up the number to waiting for a dial tone and saying good-by.

Some of the classroom uses to which teachers have adapted the "telezonia" system include lessons in language and vocabulary, memorizing of the alphabet through use of the directory, compilation of picture book projects about telephones, and good citizenship by demonstrating needed cooperation on a party line, the report stated.

Use of the program in classrooms also has led to some unusual results—in one instance enabling a youngster to regain his "lost" voice.

The eight-year-old pupil concerned had not spoken a word in classroom for two years, despite efforts of three teachers to lure him into oral participation, an Illinois Bell official said.

However, when the teacher was about to pass up this youngster during the telephone practice, the pupil suddenly broke his long-standing silence and asked for his turn. He has since been permanently "cured," the spokesman added.

In a country-wide setup, last year's program covered 1,200 schools and more than 113,000 pupils. Also being introduced is an advanced program for secondary school use. This course includes lessons in business training.

Newspaper Group Cites Ohio Company for Advertising

The Elyria (O.) Telephone Co. has been cited by The Newspaper Advertising Executives Association for its newspaper advertising. Proofs of the advertisements were displayed at the association's national convention at White Sulphur Springs, W. Va., last summer. Selected advertisements are included in a sales and idea book which is furnished to all member newspapers in the United States and Canada.

This is the second award for The Elyria company within a year. Last fall the company received a plaque from The Cleveland Advertising Club for noteworthy achievement in advertising. Anson F. Hardman, of Cleveland, who handles the company's advertising, is a retired public relations official of the Bell System. Mr. Hardman directs advertising and public relations for a number of telephone companies in the Independent field.

E. W. Petersen Joins Northern Ohio Company

E. W. Petersen has joined the general office staff of Northern Ohio Telephone Co., Bellevue, as an engineer.

Mr. Petersen has been associated with the General Telephone Co. of Michigan for the past 10 years. He learned telephone line construction as a lineman and later became an engineer for that company. He attended school at Tri State College and served two and one-half years in the Naval Air Transport Command, Pacific Wing.

Virginia T&T Elects D. T. Swanson to Board

Judson Large, president of Virginia Telephone & Telegraph Co., on Nov. 14 announced that Duane T. Swanson has been elected a member of the board of directors of the company, effective

D. T. SWANSON

immediately. He will also continue as vice president and division manager of the company with headquarters in Charlottesville, Va.

Mr. Swanson is also a vice president and division manager of Central Telephone Co., an affiliated company, operating in 11 towns in West Virginia, and in 21 cities and towns in North Carolina. He is likewise president of Southern Telephone Co., an affiliate, which is in the process of constructing telephone facilities in the rural areas of Virginia.

Mr. Swanson is a director and past president of the Virginia Independent Telephone Association.

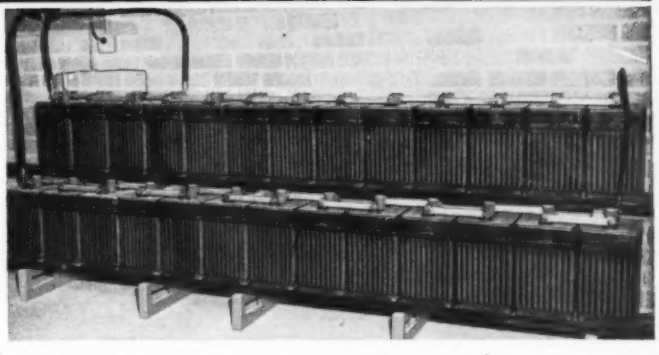
Illegible Handwriting Costs Industry $70,000,000 a Year

More than 70 million dollars were lost by American businessmen last year because of illegible handwriting, according to Albert G. Frost, president of the newly formed Handwriting Foundation.

Citing the Illinois Bell Telephone Co., which he said had been losing $50,000 a year "because girls couldn't write call tickets plainly enough for the company to charge them," Mr. Frost gave three major reasons for the decline in handwriting quality in recent years: crowded schools and decreased attention by teachers; decreased emphasis in handwriting in business; and decreased attention given to the writing of personal letters (TELEPHONY, June 1[illegible] p. 40).

At Southeast Nebraska Telephone Company

It's C&D Batteries for EXTRA life



New C&D Battery installation at Falls City, Nebraska. The Southeast Nebraska Telephone Company has a string of C&D PlastiCal (lead-calcium) cells here—capacity 540 A. H.

Just installed—but with a long, long life ahead—are these C&D PlastiCal Batteries for The Southeast Nebraska Telephone Company. Their job: to provide dependable, round-the-clock service for the busy Falls City area, an important town in the great Cornhusker State.

Like many telephone properties, Southeast Nebraska depends on C&D for reliability. The next time you order batteries, specify C&D. For with C&D you get:

1. **One-piece, permanently-sealed plastic case. Entire unit is shock-resistant... lighter and more compact than glass or rubber.**
2. **Elimination of sudden leaks due to internal stresses.**
3. **Easier maintenance, because patented Post Seal eliminates acid creepage.**
4. **Lower shipping costs. Light plastic case reduces total in-place cost.**

For C&D Batteries—consult your Equipment Supplier.

For details and specifications — write for Bulletins T-527 and T-528.

C&D

BATTERIES, INC.
of Conshohocken, Pa.
Manufacturers of Industrial Batteries since 1906

SALES AND SERVICE OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

be on the ALERT

when it is so easy to install

SIGNAL

Telephone Ringing

RELAY SETS and accessory

SIGNAL

Equipment

Immediately Available **FOR CIVILIAN DEFENSE**

These Relay sets have already been installed in many leading communities for operation of Civilian Defense Alarms.

The SIGNAL Relay Set can be installed quickly and easily. It is designed to operate on standard telephone ringing current of 15 milliamperes at 90 volts, 20 cycles

The Telephone Ringing Relay Set has been proved in service and is of the same high quality which characterizes all relays, devices, and control systems built by the Signal Engineering and Mfg. Co.

Sales Representatives in Principal Cities.

Write for Catalog TR-4

Wheelock RELAYS

SIGNAL ENGINEERING & MFG. CO.

LONG BRANCH, NEW JERSEY

PICK **PORTER TOOLS**

for *SERVICE* and *SAFETY!...*

METAL CUTTING TOOLS

A tool for every telephone cutting job — bolts, rods, wire, wire rope, cable, hard and soft chain.

LINKFIX CHAIN REPAIR TOOLS

Tire Chain Link Repair Tools — for all cars and trucks.

PRUNING TOOLS

Telephone men prefer Porter Tree Trimmers, made in four different head types with solid or sectional poles, plus fast cutting pole saws. Try PORTER'S powerful FORESTER LOPPING SHEARS, with capacities up to 2" green wood, for line clearing and brush cutting.

Ask about HYDRAULIC CABLE CUTTERS and HYDRAULIC BUS BAR BENDER

PORTER COHARDITE INSULATED TOOLS

These famous tools serve two ways — for faster work — and safer work! Tough, durable insulation practically eliminates accidents. Wire Cutters factory-tested to 20,000 volts. Ask for Porter COHARDITE Tools — or write us for full information.

ELECTRIC WIRE CUTTERS

ADJUSTABLE HEAD WRENCHES

STANDARD SCREWDRIVERS

METERMAN'S SCREWDRIVERS

SOCKET WRENCHES

ALSO HACKSAW FRAMES— all COHARDITE INSULATED

Available at your supply house or write direct for Catalog and Prices.

H. K. PORTER, INC. HKP ® **Somerville 43, Mass.**

More Common Ownership in U.S. Than Under Communism

"Communism, according to Marx and other prophets and philosophers of the total state, is a system of government whereby the workers own the tools of enterprise and industry, and share equally in all that is produced. In actuality, of course, the worker under communism becomes a tool, at the mercy of the men in power, and his share of production usually amounts to a bare subsistence.

"In this country, on the other hand, and within another generation, workers will approach ownership of the tools of industry—if employe stock purchase plans are widely continued.

"That striking observation was made by the head of a major oil company, in an article appearing in a magazine published by the New York Stock Exchange. His company has long had stock purchase plans, to which it makes large contributions. He said: 'We are firmly convinced that encouraging employes to save—and to share in our progress by becoming stockholders—has benefited both the company and the employes. We also believe that widespread adoption of such plans would help provide economic education for millions of corporate employes, to the benefit of all concerned.'

"That phrase 'economic education' graphically points up the big thing. A recent survey showed that 77 per cent of the adult population could not correctly define a common stock. Here is an educational deficiency that really cries out for correction—for common stocks, along with other securities and obligations, are one primary means whereby industry gets the money that builds plants, develops new and better products, creates jobs and purchasing power—whereby, in short, it maintains and improves the living and working standards of America. And the owners of stocks are partners in American enterprise."—INDUSTRIAL NEWS REVIEW.

Leadership of the Individual

"As our demands for energy continue to increase, we must assure the wisest use of our exhaustible supplies of fossil fuels such as oil, gas, and coal. Hydroelectric developments should assume their proper rôles . . . Before too long, atomic energy may be expected to contribute to our supply. The primary rôle in the development of the nation's resources has always been assumed by private individuals rather than by government. That has been the historic American way."—DOUGLAS MCKAY, *Secretary of the Interior.*

Whiskers on tin-plated steel, enlarged 6 times. Immense yield strength of metals in whisker form was discovered by Bell scientists.

The clue of the metal whiskers

The habit of close observation at Bell Laboratories often turns "tremendous trifles" into important scientific progress. Such a case occurred when unexplained short circuits in wave filters seemed to be associated with a zinc-plated mounting bracket.

Close scrutiny disclosed a whiskery growth on the zinc plating. Similar whiskers of tin were found growing on tin-plated equipment. Studies showed the whiskers to be tiny single crystals of metal.

Suspecting that these unusual crystals might be of essentially perfect structure, alert Laboratories scientists saw an opportunity at last to test an important metallurgical theory.

The scientists studied the whiskers, grew larger ones, and showed that the crystals had enormously high yield strength as predicted by the theory for perfect crystals—a strength far greater than for the same metal in any other known form. This clue has opened new frontiers in the study of what makes metals strong or weak, and has excited metallurgists all over the world.

Thus, another new advance has come out of the Bell Telephone Laboratories practice of scrutinizing *everything* that can play a part in better telephone service.

Through the study of thousands of specially cultivated whiskers, Bell scientists seek to prevent treacherous growths in telephone equipment.

BELL TELEPHONE LABORATORIES

IMPROVING TELEPHONE SERVICE FOR AMERICA PROVIDES CAREERS FOR CREATIVE MEN IN SCIENTIFIC AND TECHNICAL FIELDS

The Standard of the Telephone Industry

DUR-O-LITE DIALING PENCIL

Developed Exclusively for the Telephone Industry

- **QUIET DIALING . . .** Stainless steel dialing-ball segmented to eliminate metallic tone.
- **CAN'T SCRATCH . . .** Dialing-ball revolves freely . . . won't deface dial or finger-wheel.
- **STURDY . . .** Nickel-silver base of dialing tool permanently mounted upon bakelite barrel of pencil.
- **DEPENDABLE WRITING** Lead held firmly in writing tip . . . no side-slap . . . no back-lash.
- **BIG LEAD CAPACITY** Leads feed consecutively, one after another . . . reloading frequency minimized.
- **CHOICE OF LEADS . . .** Dur-O-Lites are provided with mechanisms for either standard diameter (.046") leads or extra thin (.036") leads.

No. 183 ACTUAL SIZE

Double Ender

No. 113

No. 108

Other styles for the industry: Traffic Pencil No. 108 (= B.S.S. No. 8-B) for manual boards; Clerical Pencil No. 113 (= B.S.S. No. 13-B); Double-Enders, with choice of 2 colors of lead in either end; Leads all grades and colors.

Write for samples and quotations on Company letterhead. Please indicate styles and probable quantities required.

DUR-O-LITE PENCIL COMPANY

Manufacturers of Fine Mechanical Pencils
MELROSE PARK, ILL. • TEL. FILMORE 4-7600
(On the edge of Chicago)

Bell's Ambidextrous Machine Wires Electrical Apparatus

BELL TELEPHONE Laboratories has developed an ambidextrous machine that can automatically wire complex electrical apparatus.

The experimental machine, called the "M-4," was developed by the laboratories to study apparatus and equipment designs best suited for automation. It can neither see nor hear, but it can "feel" and thus follow instructions with great accuracy. Instructions are fed to the machine from a punched tape. A series of relays, acting as the machine's "brain," translate this information into electrical signals. The signals then control the cams and gears of the machine.

The M-4, designed by R. F. Mallina, uses a process for making solderless wrapped connections, also started at Bell Laboratories. This process, applied by hand controlled tools, is now used for important production work by the Western Electric Co.

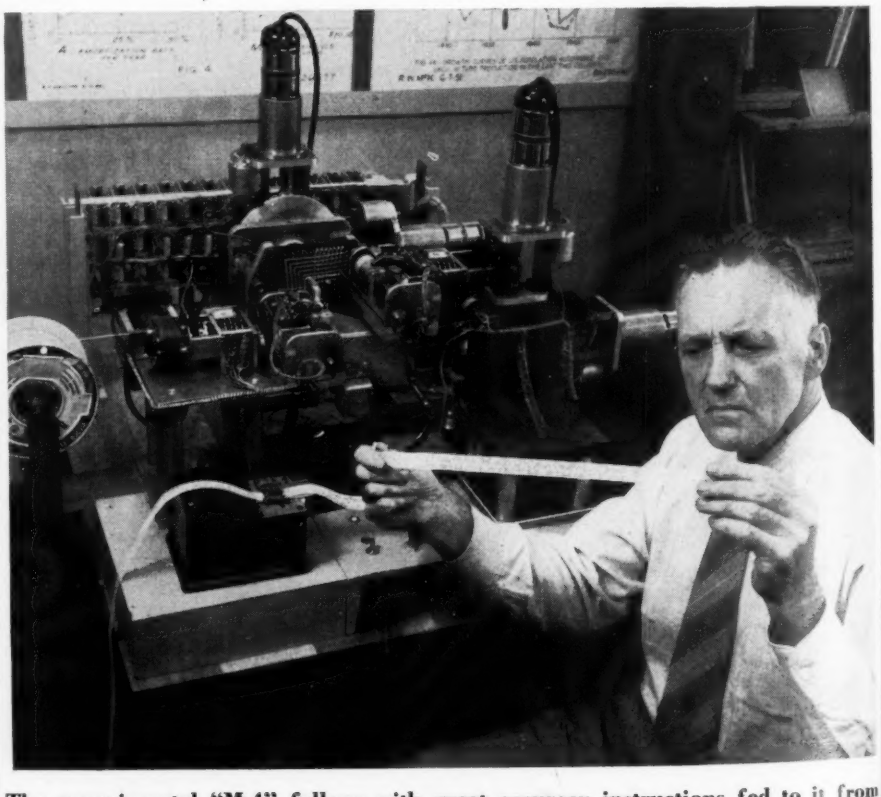
Connections are made by automatically wrapping six turns of solid-conductor wire around a rectangular terminal. The high wrapping tension provides an airtight, corrosion-resistant contact between the wire and terminal at numerous points.

Bell Laboratories tests indicate that the solderless wrapped connection could be expected to provide a satisfactory connection for at least the life of associated apparatus.

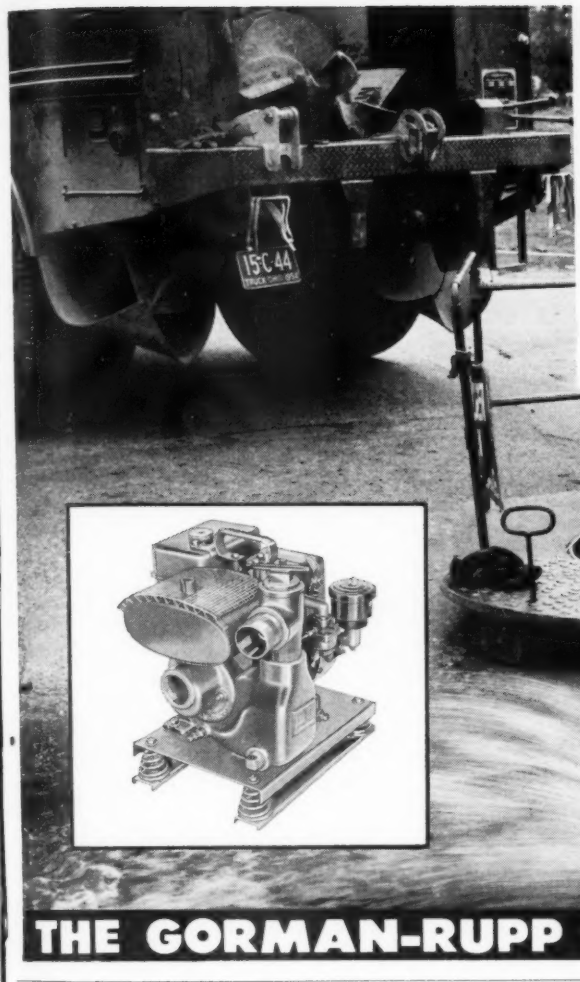
Solderless wrapping eliminates the danger of burns from hot soldering irons. It does away with disagreeable solder fumes and the chance of short-circuits from solder splashes or wire clippings.

The experimental machine uses two rotating spindles. The wire is fed directly from a large spool. One spindle pulls the wire, in an inverted L-shaped movement, to a connecting terminal. At the same time the wire is cut to the correct length at the second spindle.

The spindles remove a bit of insulation from each end of the wire as they whip the bare wire ends around the terminals. This produces a pressure



The experimental "M-4" follows with great accuracy instructions fed to it from a punched tape. A series of relays in the background acts as a "brain" and translates this information into electrical signals which control the cams and gears of the machine. The M-4 uses a process for making solderless wrapped connections by which it wraps solid-conductor wire around rectangular terminals.



GORMAN-RUPP PUMPS

Designed for Telephone Companies

QUIET — STURDY — EFFICIENT

Especially for **quiet** zones — ideal for residential areas. Equipped with quiet accessories, including muffler and hand throttle.

ASK FOR TELEPHONE PUMP BULLETIN

THE GORMAN-RUPP COMPANY • MANSFIELD, OHIO

QUALITY PRODUCTS

Rely on

SUTTLE

For Quality Products and Prompt Delivery

Specialized Service for the Small and Medium-Sized Independent Telephone Co.

Use Your Suttle Catalog

Leading Brands of Telephone Supplies, Tools, and Accessories

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Specialty Distributors of
TFA (Danish) Switchboard Plugs
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Manufacturers of
Suttle Ready Wire Reels
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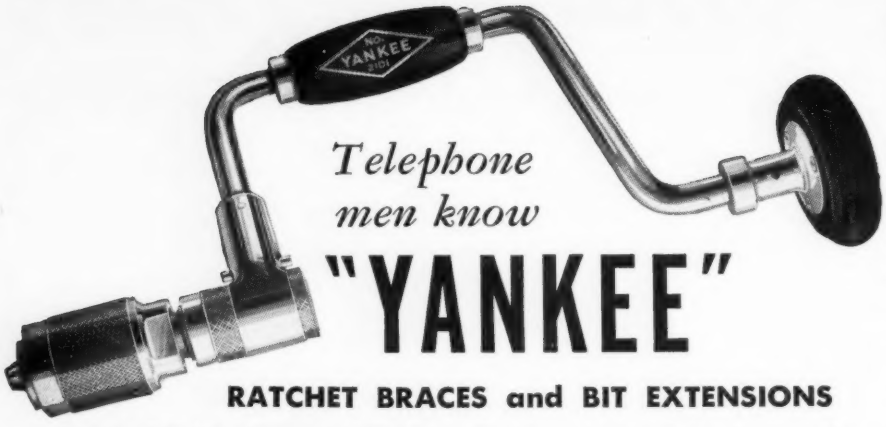
INDEPENDENT

Suttle Equipment Co.

Phone 782-783 **Lawrenceville, Illinois**



Telephone men know

"YANKEE"

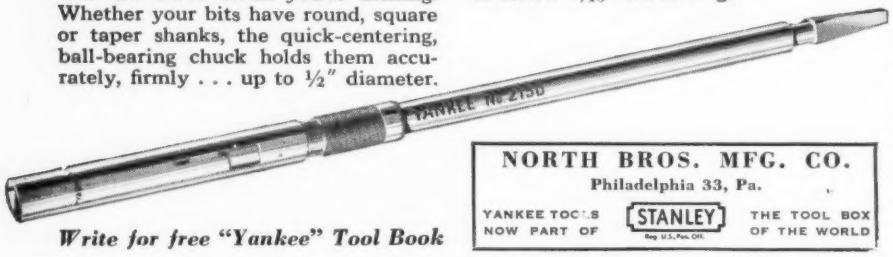
RATCHET BRACES and BIT EXTENSIONS

"Yankee" Ratchet Braces and Bit Extensions are old telephone company friends. Maintenance and installation men know from years of using them the sturdy stuff they're made of, the fine way they're made and how much these tools ease up a job.

The No. 2101 Brace was made with an installer time ticket in mind. It has the famous "Yankee" Ratchet that's easy, positive and quiet. The shifter will not move when you're drilling. Whether your bits have round, square or taper shanks, the quick-centering, ball-bearing chuck holds them accurately, firmly . . . up to ½" diameter.

You bore true and fast because the patented sweep handle cancels out excessive play or binding. Practically unbreakable hard rubber handles.

The No. 2150 Bit Extension holds square shanks firmly in an inner socket. Chuck is constructed to accommodate all types of square shanks securely and without jamming. Taper end of shank is accurately machined. Bit cannot loosen while extension is in use. Made to follow $11/16$" bit or larger.



Write for free "Yankee" Tool Book

NORTH BROS. MFG. CO.
Philadelphia 33, Pa.
YANKEE TOOLS NOW PART OF STANLEY THE TOOL BOX OF THE WORLD

TWO TOP QUALITY ELECTRIC LACING TWINES

FROM THE SAME SUPPLIER

THE LINEN THREAD CO., INC.

418 Grand Street, Paterson 1, N. J.
Boston 10 • Chicago 10 • San Francisco 5
Baltimore 3 • Philadelphia 6 • Gloucester

of about 15,000 pounds per square inch at each contacting area.

Following their punched tape instructions, the spindles then pick up the supply wire from the spool and move to the next electrical connection where the process is repeated. Machine wiring eliminates the need for preparing, storing and handling many short pieces of wire.

The M-4 can be used in conjunction with plastic panels, all alike, on which are mounted different groups of electrical parts such as electron tubes, or transistors, resistors, and capacitors. The terminals of the parts protrude through holes in the panels spaced at regular (modular) intervals.

It can be visualized that when suitable apparatus and equipment designs are ready for manufacture, several machines, developed along the lines of the M-4 might be used at once, all receiving instructions from a common "brain." The machine is a distant cousin of textile industry machines which handle and interconnect thousands of threads more delicate than wire.

Human Development

"We realize that the development of products, the creation of new facilities, and the expansion of the sales vehicle are not in themselves sufficient. Expansion of our human resources must match our physical growth if we are to reach our goals." — GWILYM A. PRICE, *president, Westinghouse Electric Corp.*

Who Pays Taxes

In 1954, 29,433,000 Americans with incomes under $5,000 paid slightly under 5 billion dollars in federal income taxes; 17.3 million Americans with incomes between $5,000 and $10,000 paid 11.3 billion dollars in taxes.

The 3.2 million with incomes between $10,000 and $25,000 paid 6.2 billion dollars in taxes.

The 420,000 with incomes between $25,000 and $50,000 paid taxes of 3.4 billion dollars and the 110,000 having incomes over $50,000 yearly paid 4 billion dollars in taxes.

Last year out of the profits of earnings of American corporations, the government received 17.2 billion dollars in taxes, while the stockholders received 9.9 billion dollars in dividends.

The Dollars and Cents of Why It Pays to Telephone

IN an editorial, "Don't Write—Telephone," the *National Underwriter* publication presented some sound dollars-and-cents reasons why Business has much to gain in time and money from the expeditious handling of letters and memorandums by telephone. Says that journal:

"At the risk of sounding like an A. T. & T. publicity man we suggest a resolution for harassed insurance executives that they vow to write fewer memorandums and letters in the future and instead make more use of that time- and money-saving invention the long distance telephone.

"Moreover, as a means of getting more value out of the time of scarce and hard-to-get executives, we believe top management would do well to foster such a move and even insist on executives using the telephone instead of the written word wherever feasible.

"Of course, letters and memorandums are all right for strictly routine communications. Most of these can be written by a secretary, anyway, and do not warrant the expense of a long distance call.

"But for handling a situation that is in the least complex, or that calls for the exercise of diplomacy by the writer, or for any other reason demanding special care in the writing so it will be accorded the desired reception and elicit the response or action that the writer wants—well, anyone who has tried to deal with such a situation by mail knows all too well the struggle that is involved in producing the wanted result.

"How much simpler it would be, how much costly executive time would be saved, and how much less conducive to ulcers and high blood pressure it would be just to pick up the telephone and chat a few minutes.

"The caller is spared all the monkey-business of framing a carefully worded letter or memo. The man at the other end of the line is spared having to wade through a communication that probably recites a great deal that he is already familiar with, yet lacks certain information that he would like to have in order to frame a reply or decide on what action to take.

"In a five-minute telephone call there may be a dozen or more questions, statements and responses, the equivalent of writing a dozen letters back and forth.

"Of course, nobody ever bats the conversational ball back and forth in this way in such a long series of letters and memos, so often the result is that the two people never come to a real meeting of the minds. Sometimes this is only mildly irritating. At others it can be quite frustrating.

"Yet it is amazing to observe how many matters that could be much more expeditiously handled by telephone are made the subject of letters and memorandums.

"If a company took the trouble to analyze the cost of written communication as compared with long distance telephoning it would be surprised at how much of its executive payroll outlay is for a cumbersome, outmoded procedure that could be much more economically supplanted by the telephone.

"A $20,000-a-year executive is paid at roughly the rate of $12.50 an hour

ACORN INSULATED WIRE

Acorn wire has meant quality since 1914. Neoprene jacketed for drop, distributing and bridle wire. Acorn plastic insulation for inside, jumper and cross connecting wire. Specify Acorn.

ACORN INSULATED WIRE CO., INC.

36 FREEMAN STREET, PAWTUCKET, RHODE ISLAND

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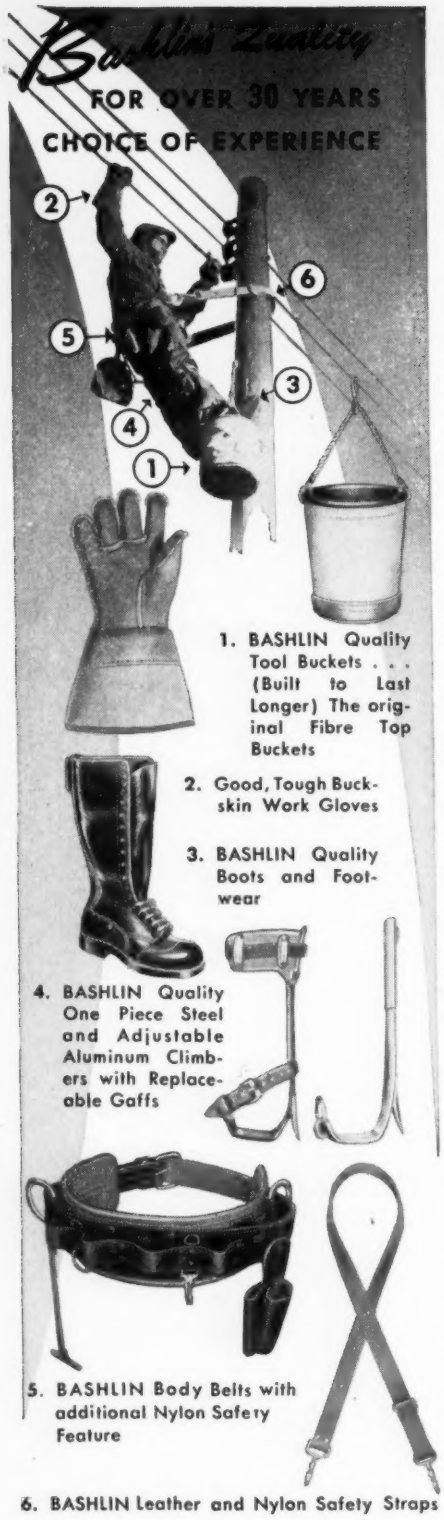

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for the seven-hour day his pay is based on. The $10,000-a-year subordinate to whom he is writing gets paid at the rate of $6.25 an hour.

"The $12.50-per-hour man would have to speak faster than a tobacco auctioneer to dictate rapidly enough to make memo-writing cheaper than telephoning.

"Even for the man who is paid $6.25 an hour the same could doubtless be said. But in the typical situation, each of these men will probably do his dictating in a fairly deliberate manner, with pauses for cogitation, with false starts and many corrections.

"If the communication is lengthy, it takes more time for the recipient to read and understand it; if it is condensed, it takes much more time to write and runs the risk of being misunderstood. At best, it is extremely difficult to convey shades of meaning in writing but very easy to do so in conversation.

"There is of course much more to the use of the telephone as against writing. The main thing, from the employer's point of view, is that entirely aside from any monetary saving, the telephone permits busy executives to keep current with their work much more readily and to accomplish more. . . .

"It means that the man who has to work after hours, or at home evenings and weekends needs to do less of this frustrating after-hours work. He will thus be a better employe in the time for which he is being paid, with less chance of breaking down under abnormal strain—all to the obvious advantage of the man himself and the company he works for.

"For anyone who still has a doubt of the superiority of the telephone as a time-saver and money-saver for communications above the routine level, we suggest this: Measure the time it takes to frame such a communication, to read it over before sending it out; estimate how long it takes the recipient to read and understand the contents and to frame a reply and check how long it takes you to read his answer.

"Then estimate the cost in salaries, and even neglecting the secretarial time involved, the saving in money will be so obvious that you'll feel you're wasting your company's money every time you handle such a matter by correspondence rather than by telephone. And the amount of time you will save for other pressing tasks will amaze and gratify you."

Local Initiative Encouraged

"We are firmly convinced that where a nonfederal proposal can provide results which, in terms of comprehensive development, are reasonably comparable with those anticipated from a federal project, the people of the region should be encouraged to utilize, in every proper way, the available capacities of public or private organizations for doing the job on a nonfederal basis under conditions fully protecting the public interests." — DOUGLAS MCKAY, *Secretary of the Interior.*

Index Provides Information On Fire, Accident Control

A fire and accident control information service, the first of its kind in the field of information services, has recently been announced by Loss Control Associates, Plattsmouth, Neb.

After eight years of assembling, research and compiling, an "Index and Directory" of fire and accident control codes, standards, and references is being offered.

The "Index and Directory" was developed for the express purpose of providing a fast and reliable means of locating any information desired on accident prevention, fire control and health and sanitation contained in nationally recognized codes and standards and reliable references.

Consequently, it may be used in fire and accident control administration, management, supervision, planning and programming, design and engineering, education and training, examining and testing, inspecting and investigating, lecturing, research, library development, etc., in almost any phase of modern activity, occupation, or operation.

The "Index and Directory" provides three separate and distinct services, each serving an individual need.

All information on fire and accident control that could be procured by Loss Control Associates was assembled, reviewed and indexed according to subject matter. The "Index" thus formed is not a text. Instead, it will quickly provide its user with exact directions as to where he may find complete information concerning any phase of fire and accident control on practically any subject in which he is interested.

The second part of the service constitutes a valuable "Guide" to the many phases of fire and accident control. Each of the subjects contained in the Index is further broken down into sub-topics which call to mind the various considerations necessary on the subject as well as the preventive actions necessary. The subjects and their sub-topics are each extensively cross-referenced for the users' information and convenience.

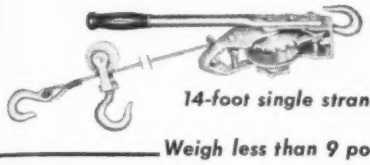
Also included in the service is a

ACCO Quality

Wright Type "R" PULL-A-WAY

Write for Bulletin DH-163B

5-foot double strand 3000-lb. pull



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Weigh less than 9 pounds

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Write our York, Pa., Office for Bulletin DH-163A for full story

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- 5800 Series Magneto Wall Telephones, Page 124 Catalog #11
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- F817 and 9817 Series Telephone and any frequency with or without dial, Page 122 Catalog #11
- Desk Set Boxes, Common Battery and Magneto, pages 5 & 6 Catalog #11
- 27C Hand Sets with new cords
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- Induction Coils, any type
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Especially adapted for carrier circuit construction

CASE ALUMINUM TRANSPOSITION POINT BRACKETS

Weighs about 4 lbs., complete with insulators. Save on maintenance; send for booklet fully describing the Case Aluminum transposition bracket.

Insulators come equipped with rubber bushings which maintain line circuit operation in event of breakage.

Catalog No.	Type	Wire Spacing	Wgt. Per C.
SE-1648	R.H.	8"	220
SE-1780	L.H.	8"	220
SE-1650	R.H.	6"	200
#1088	Glass Insulator (with bushing)		48
RC-1	Rubber Insulator		35

*The above brackets and insulators should be ordered separately.

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Consulting Engineers and Constructors

●Here's the reel jack that is strong and stable without hard-to-handle extra weight. An aluminum alloy housing reduces overall weight by 21 pounds, yet maintains full 10-ton capacity. "T" shaped laminated oak base gives solid, safe foundation. Single acting mechanism provides easier operation. Handles reels to 84" dia.; weighs 83 lbs. Furnished with 5' lever bar.

Write for full data on Reel Jack No. A-1029 and other Simplex Utility Jacks.

Pole Pulling and Straightening Jacks—Save time, cut work crews necessary to pull, straighten or move poles. No. A-1538 has aluminum housing, 15-tons capacity, weighs 63 lbs.

All-Purpose Jack — No. 310A lifts, pulls, pushes at any angle. Four lift points. 15-tons capacity.

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SIMPLEX JACKS

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complete "Directory" of publications which are referenced in the "Index and Guide." The "Directory" shows the price and procurement address of essentially all of these publications.

A "Supplemental Service" developed for the purpose of keeping the "Index and Directory" up-to-date will be issued each six months.

The service is endorsed by nationally known fire and accident control engineers, directors and officials. It is believed that the service will constitute a further step toward the control of loss from fire and accidents.

Michigan Company Pays Debt For Dial Service in a Year

Customers of the Alger (Mich.) Associated Telephone Co., the stockholders, directors, and a few guests were present at a dinner in the Alger town hall on Nov. 3, to celebrate the first complete year of operation under the new automatic telephone system.

The number of telephones in service during the past year has increased from 43 to 71 or 65.1 per cent; the number of shareholders from 69 to 108 or 56.5 per cent; and the number of shares of ($10 par) common stock issued from 1,080 to 1,457, an increase of approximately 35 per cent.

When dial service was inaugurated last Nov. 4, the company owed Independent manufacturers and suppliers approximately $3,500. Just one year later, the company is completely out of debt, which it accomplished largely through the sale of additional stock. Recently the company placed an order for additional central office equipment which will increase the line capacity of the central office from 20 to 30 lines, or sufficient to service approximately 100 more potential rural line subscribers and to serve existing customers with a higher grade of service.

Obituaries

PAUL LASHMET, 51, for 25 years associated with the Gary Group domestic operating companies in various accounting capacities died suddenly on Nov. 20 in Cookeville, Tenn., while there on a business trip.

For the past 15 years Mr. Lashmet had handled staff accounting work in connection with rate proceedings and toll compensation studies for the Gary Group domestic operating companies. He had been located in the Chicago office of the Gary Group for the past five years and prior to that had been located in Fort Wayne, Ind.

Prior to his advancement to the staff position he held at the time of his death, he had been auditor of Illinois Telephone Co. in Jacksonville, Ill. Mr. Lashmet was also a member of the Sub-committee on Separations of the Toll Compensation and Settlements Committee of the United States Independent Telephone Association.

Mr. Lashmet is survived by his wife and two children, Paula and William.

* * *

ALVA B. CLARK, 65, a leading research expert in the telephone industry, died on Nov. 14 in New York City, following a stroke two weeks before.

Mr. Clark retired last February as a vice president of the Bell Telephone Laboratories, after more than 43 years with the Bell System, and had since been directing a research project for the U. S. Department of Defense. His home was in Washington, D. C.

During his career in the communications field, Mr. Clark received 44 patents for telephone devices and played a major role in a number of developments.

He led the planning and engineering of the transcontinental coaxial cable and microwave radio-relay systems for telephone and television transmission. He directed development and engineering of the nationwide dialing system,

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LINEMEN AT WORK
USING
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Positive strength and durability economies, combined with the superior qualities of steel, make Crapo Galvanized Steel Strand a rugged performer. The heavy, ductile, tightly-adherent galvanized coating — applied by the famous Crapo Process — provides dependable protection for the steel, prolongs the expectant life of the strand. There is a size and grade of Crapo Galvanized Strand for every practical need.
INDIANA
STEEL & WIRE COMPANY, INC.
Muncie, Indiana

also the automatic message accounting system now used throughout the Bell System.

Surviving are his wife, Mrs. Helen Kerstetter Clark; a daughter, Mrs. Judith Clark Weaver of West Concord, Mass., and three grandsons.

Alabama-Mississippi Group Names Officers, Directors

At the convention of the Alabama-Mississippi Independent Telephone Association held in Birmingham, Ala., on Nov. 14 and 15, the following directors were named: W. J. Holladay of Fayette, Ala.; Ward H. Snook of Foley, Ala.; H. W. Vaughan of Chickamauga, Ga.; D. L. Fail of Bay Springs, Miss.; C. E. Kirk of Dothan, Ala.; M. G. Weaver of Collinsville, Ala.; J. A. Miller Jr. of Fruitdale, Ala.; W. F. Corman of Atmore, Ala.; W. F. Thomas of Eclectic, Ala.; C. V. Lee of New Hope, Ala.; Lon J. Darley of Olive Branch, Miss.; R. C. Corr of Oneonta, Ala., and R. M. Pirnie of Union Springs, Ala.

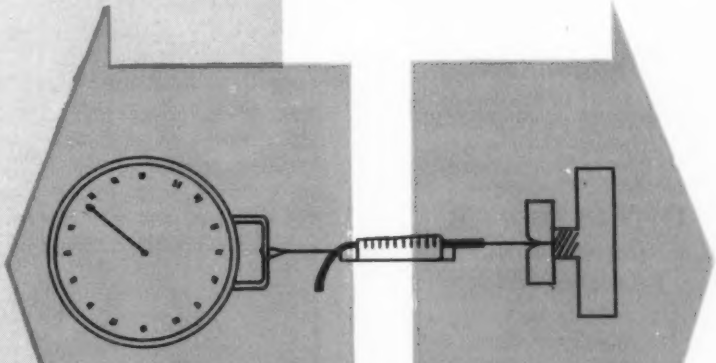
The directors elected the following officers: President, R. A. Bailey of Leeds, Ala.; first vice president, Earl McDonald of Ackerman, Miss.; second vice president, Ralston H. Robinson of Bayou La Batre, Ala.; third vice president, DeForest M. Nolen of Ashland, Ala.; secretary-treasurer, Lloyd G. Vaughan of Florala, Ala.; honorary vice presidents, J. L. Kirk of Moultrie, Ga., and E. C. Warner of Cookeville, Tenn.

South Carolina Independents Name Directors, Officers

At the convention of the South Carolina Independent Telephone Association, meeting in Clemson, on Oct. 24 and 25, the following directors were named: H. W. Askins of Chesnee;

ALPHADUCT

P clamp adhesion test



The conductor must break before it slips

P clamps are the most widely used method of attaching drop wire to buildings. Lest you may worry about a P clamp causing slipping of the insulation or jacket on Alphaduct Neoprene Jacketed Drop Wire — read about this Alphaduct service test. This test is made daily.

A sample of Alphaduct wire is inserted in a P clamp with 12 inches of the wire projecting from the top of the clamp. The bail of the clamp is then inserted in the upper jaws of a tensile testing machine, and the end of the wire is stripped free of jacket and insulation and inserted in the other end of the machine.

The jaws of the machine are then gradually separated until the conductor breaks. The conductor must break before there is ANY slipping of either the jacket or the insulation.

Don't have any worries about a little old P clamp hurting ALPHADUCT drop wire. Try Alphaduct. It's dated by a color coded thread so you can see for yourself how long it lasts, how much money it saves.

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C. B. Barksdale of Greenwood; F. S. Barnes Jr. of Rock Hill; Charles Bell of Chester; A. O. Bolen of Swansea; S. A. George of Lexington; S. S. Helmly of Moncks Corner; Gordon Saunders of Sumter; T. C. Thomasson of Lancaster; E. W. Hart of Hemingway; D. B. White of Myrtle Beach, and W. D. Wilkinson of Greenwood.

The directors elected the following officers: President, Mr. White; vice president, Mr. Barnes; secretary, R. S. Durant of Rock Hill, and treasurer, R. E. Seymour of Greenwood.

Alabama Company Accorded Tribute by Local Paper

In the community served by the Trussville (Ala.) Telephone Co., the local *East End News* recently devoted its front page to a tribute to the company and its record of rehabilitation, conversion and growth since 1946.

In August of that year, four Fields brothers purchased the Trussville company which then served slightly over 300 stations, and which was, the newspaper stated, "in very poor condition due to the wartime shortage of manpower and materials." Today the company serves well over 700 modern telephones and has nine toll line connections. It has greatly expanded its outside plant, and has plans for a further 100 per cent expansion.

Telling the story of the early years —especially difficult due to stringent finances—the paper gave the brothers' formula for success, which also was their collateral for a bank loan: Faith in Trussville, and the strength to back up that faith with any amount of hard work and sacrifice necessary. "Still today," one of the brothers says, "faith in our home town people is our greatest single asset. It's not for sale at any price."

Pa. Town's Police Calls To Be Recorded

The Bell Telephone Co. of Pennsylvania on Nov. 22 was reported to be installing an "automatic policeman" in Reynoldsville, Pa.

" ONE OF THOSE HOLES BELONGS TO US, BUT I'M NOT SURE WHICH ONE! "

Actually, it is a recording device connected to the police telephone line in the police rooms. If a policeman isn't present to answer the telephone, the recorder takes the message.

At the same time it turns on a light in various sections of the town and a policeman then will know a call is being recorded.

Previously, a local hotel had been receiving police calls.

Underscores Shortage of The Technically-Trained

Warning that "unless direct and drastic action" is taken to overcome the current shortage of scientific and technically trained personnel, "we shall in 19 years time be compelled to lock the doors of our empty university, government and industrial laboratories," John Jay Hopkins, chairman and president of General Dynamics Corp., told a teachers' conference in Oakland, Cal., on Nov. 23 that the forces of American education and American industry must cooperate if the United States is to survive this "education crisis of our atomic age."

"We are at the threshold of a new era of energy," Mr. Hopkins said, "an era of atomic fission and radioactivity, of applied solar energy, of atomic fusion—the hydrogen-helium process of the sun itself—of electronics, of automation, of new devices earth-shaking in their consequences. The old world has literally been turned upside down. Man has achieved a theoretical breakthrough of such major proportions that every fiber of his skill and ingenuity will be strained merely to exploit a portion of what has already been revealed."

"Industry everywhere is clamoring for more trained personnel and is finding it well nigh impossible to meet its high-level manpower requirements. Government leaders and educators have repeatedly warned that the Soviet Union is outstripping us in the quantity and perhaps the quality of scientific and technical personnel which are graduated annually from the Russian schools and universities."

"The continuance of this trend," he declared, "can result only in disaster."

America's educational system, he said, like other aspects of our society, has simply not been prepared for the sudden, massive theoretical breakthrough into the atomic era.

"Even as engineers, scientists and businessmen must widen their range of knowledge to accept the challenge of the atomic age, so must the teachers in our public schools broaden and vitalize their instruction," he continued.

"It is the duty," he stressed, "of government and industry and of our colleges, universities and high schools to encourage the passion to understand among those gifted with it—and to provide the climate, the atmosphere, the facilities and personnel that will nourish it and maintain it and permit it to be fruitful."

"A united effort by American educators and industrialists to develop the scientists and technicians we must have is demanded by the world situation," Hopkins concluded, "and in this educational crisis of the atomic age, it is the duty of all American educators to recognize their unique responsibility for national survival."

Automatic Electric Salesman Transferred to N. C.

Robert C. Lyday, Automatic Electric Sales Corp. representative in the Augusta, Ga. territory, has been transferred to the Rocky Mount, N. C. territory, succeeding Earl C. Ewer who has resigned. Mr. Lyday's successor has not been announced.

R. C. LYDAY

Mr. Lyday, a graduate of the University of Virginia, joined Automatic Electric in 1950. He served as an air force pilot in World War II, and was awarded the Purple Heart and five air medals. His father, Paul H. Lyday of Charlottesville, Va., is division plant engineer for Virginia Telephone & Telegraph Co.

Considerable Contribution

"The men who create productivity, opportunity, employment, wealth, and wages for a community are public benefactors and should be recognized as such."—WILLIAM RANDOLPH HEARST, *late publisher.*

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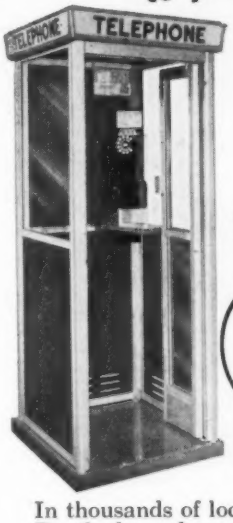

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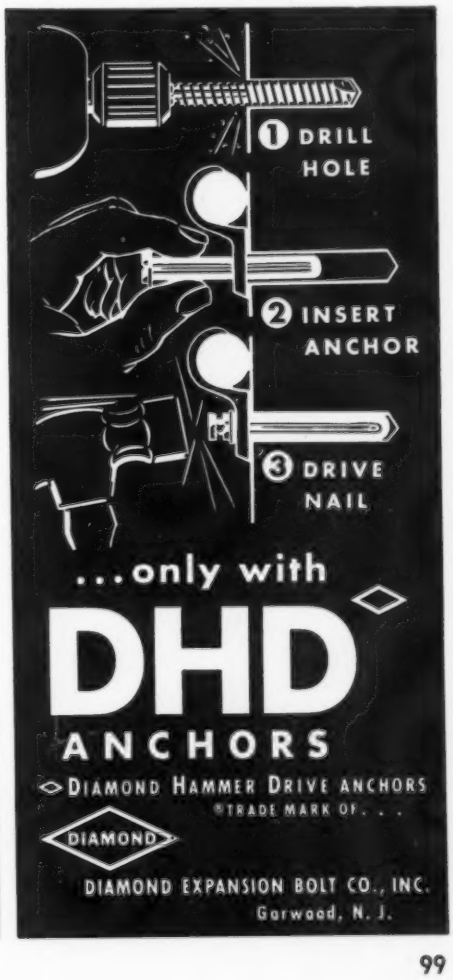

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EXPLORING COIL AMPLIFIER
(Model E)
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product of the month

C STRAND SHIFTER

Here's another versatile Dodge telephone tool. Used for raising and lowering strand-supporting cable at corner poles. (Where pull is away from corner pole.) Consists of a single aluminum roller mounted on a shaft with loops at each end for connecting bolts. Wt. 10 lbs.

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Posen Appointed Cleveland Sales Manager by Reilly

Announcement has been made recently by Peter C. Reilly, vice president of Reilly Tar & Chemical Corp., of the appointment of George Posen to the position of district sales manager in the Cleveland area.

Prior to this appointment, Mr. Posen was a Reilly salesman in the Cleveland

GEORGE POSEN

district for six years. A native of Cleveland and educated at Ohio University, Mr. Posen served with the U. S. Navy during World War II and the Korean conflict.

In his new position, Mr. Posen will have his headquarters at the Reilly office at 20106 Kinsman Road, Warrensville branch.

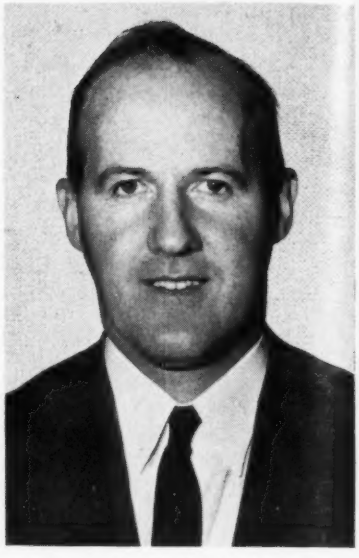
Coffing Hoist Appoints Customer Service Manager

Coffing Hoist division of Duff-Norton Co. recently announced the appointment of Andrew M. Kelly as manager of a newly-created customer service department.

Mr. Kelly, a graduate of Georgia Institute of Technology in Atlanta, will supervise all correspondence dealing with orders, deliveries and customer relations from Coffing's Danville, Ill., plant.

In addition, the customer service department will work in liaison with production and engineering to expedite deliveries. J. R. Coffing, vice president-sales for Coffing Hoist division, said "Mr. Kelly will study our sales trends with the objective of speeding deliveries by increasing our inventories in fast-moving hoists."

Mr. Kelly, a native of Savannah, Ga., served as a Marine fighter pilot in World War II and the Korean conflict. He is a major in the Marine Reserve Corps.



A. M. KELLY

Stromberg-Carlson Makes Two Engineering Appointments

James D. Confeld has been appointed senior toll ticketing engineer of the Stromberg-Carlson Co., a division of General Dynamics Corp., according to Harry M. Bruckart, chief telephone engineer.

Appointment of Leslie A. Hodson as toll ticketing engineer to assist Mr. Confeld was announced at the same time.

A native of Minneapolis, Minn., and an electrical engineering graduate of the Michigan College of Mining and Technology, at Houghton, Mich., Mr. Confeld has been with Stromberg-Carlson since 1944, when he joined the company as an XY circuit tester. He has been a leader in research on the XY universal switch and toll ticketing systems, and holds several patent applications covering various features of toll ticketing circuits.

According to the company, Mr. Confeld is recognized as an authoritative lecturer and writer on telephone engineering subjects, and has talked frequently before utilities, electrical engineering, telephone operating and other technical groups throughout the United States. He has contributed a number of technical articles to journals in the telephony field. Mr. Confeld is active in the Audio Engineering Society.

Mr. Hodson, a native of England, joined Stromberg-Carlson in August 1955, as a senior telephone engineer. He received his education in telecommunications in Leeds Technical College, England, and entered the telephone industry in January 1935, as an engineer in the British Post Office which oper-

J. D. CONFELD

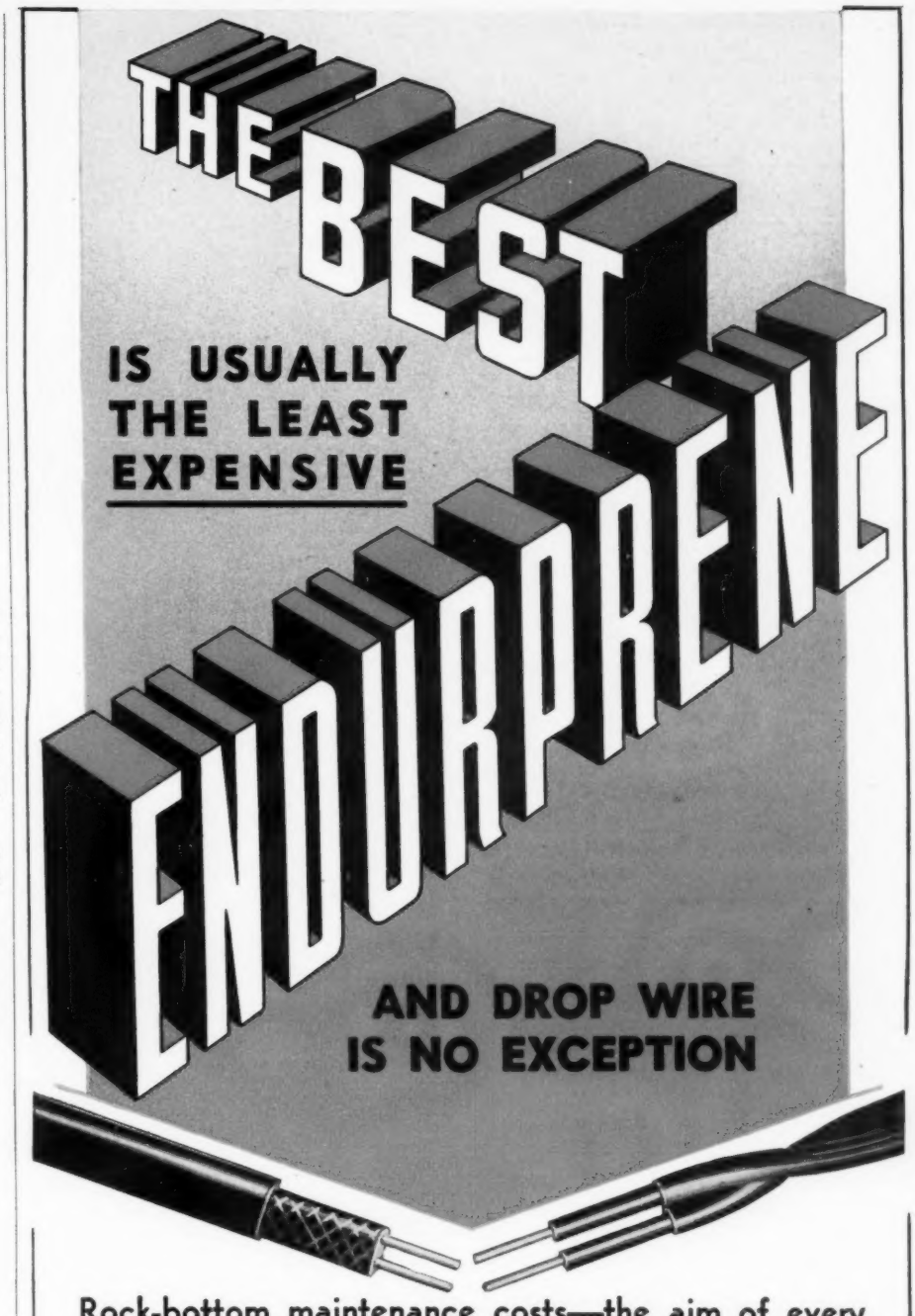
ates all telephone service in Great Britain. He became a traffic superintendent in the service in 1939, and served in that capacity, in the management and engineering of manual, dial and central offices until 1948, when he left to become chief operating engineer of the Automatic Telephone & Electric Co., Liverpool, England.

During World War II Mr. Hodson was commissioned in the Royal Corps

L. A. HODSON

of Signals, and was primarily concerned with the engineering, construction and maintenance of long distance open wire circuits, and with the operation and maintenance of long distance radio links.

In 1952 Mr. Hodson came to the United States to accept the position of commercial and traffic manager of the Elyria (O.) Telephone Co. The following year he joined the General Telephone Co. of the Southwest as an engineer, and later was appointed special project engineer to study nationwide toll dialing.



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Opinion on Automation

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